



RESOURCE MANAGEMENT COMMITTEE  
 Robert K. Lindsey, Jr., Interim Chairperson  
 Leina'ala Ahu Isa, At-Large  
 Dan Ahuna, Kaua'i  
 Kalei Akaka, O'ahu  
 Keli'i Akina, At-Large  
 Brendon Kalei'aina Lee, At-Large  
 Carmen Hulu Lindsey, Maui  
 Colette Y. Machado, Moloka'i/Lāna'i  
 John Waihe'e IV, At-Large

**STATE OF HAWAII  
 OFFICE OF HAWAIIAN AFFAIRS**

**MEETING OF THE COMMITTEE ON  
 RESOURCE MANAGEMENT**

**DATE:** Wednesday, February 13, 2019  
**TIME:** 10:00 am  
**PLACE:** OHA Board Room, Nā Lama Kukui  
 560 N. Nimitz Hwy., Suite 200  
 Honolulu, HI 96817

**AGENDA**

- I. Call to Order
- II. Public Testimony\*
- III. Approval of Minutes<sup>†</sup>
  - A. January 9, 2019
- IV. Unfinished Business
  - A. Discussion of OHA baseline spending vs. investment - SPIRE Hawaii (Certified Public Accountants for Fiscal Sustainability)<sup>‡</sup>
- V. New Business
  - A. NHTF 3<sup>rd</sup> Quarter Portfolio Review with Investment Consultant Segal Marco and Investment Staff
  - B. State Street Global Advisors Discussion of Funds and Market Environment
  - C. Action Item RM 19-01: Member approval of procedures to change the management structure of Hi'ilei Aloha LLC and Ho'okele Pono LLC<sup>†</sup>
- VI. Executive Session<sup>†</sup>
  - A. Approval of Minutes - January 9, 2019<sup>†</sup>
  - B. Consultation with attorneys William Yuen, Esq., Judy Tanaka, Esq. and Robert Klein, Esq. on OHA's powers, privileges and liabilities regarding OHA's role as member of Hi'ilei Aloha LLC and Ho'okele Pono LLC and management options for those LLC's. Pursuant to HRS section 92-5(a)(4).
- VII. Announcements
- VIII. Adjournment

If you require an auxiliary aid or accommodation due to a disability, please contact Albert Tiberi at telephone number 594-1754 or by email at [albertt@oha.org](mailto:albertt@oha.org) no later than three (3) business days prior to the date of the meeting.

\*Notice: Persons wishing to provide testimony are requested to submit 13 copies of their testimony to the Chief Executive Officer at 560 N. Nimitz, Suite 200, Honolulu, HI, 96817 or fax to 594-1868, or email [BOTmeetings@oha.org](mailto:BOTmeetings@oha.org) 48 hours prior to the scheduled meeting. Persons wishing to testify orally may do so at the meeting, provided that oral testimony shall be limited to five minutes.

<sup>†</sup>Notice: The 72 Hour rule, pursuant to OHA BOT Operations Manual, Section 49, shall be waived for distribution of new committee materials.

<sup>‡</sup>Notice: This portion of the meeting will be closed pursuant to HRS § 92-5.

Trustee Robert K. Lindsey, Jr.  
 Interim Chairperson, Committee on Resource  
 Management

2/7/19  
 Date

**Office of Hawaiian Affairs**

# ANALYSIS OF INVESTMENT PERFORMANCE

**Native Hawaiian Trust Fund**

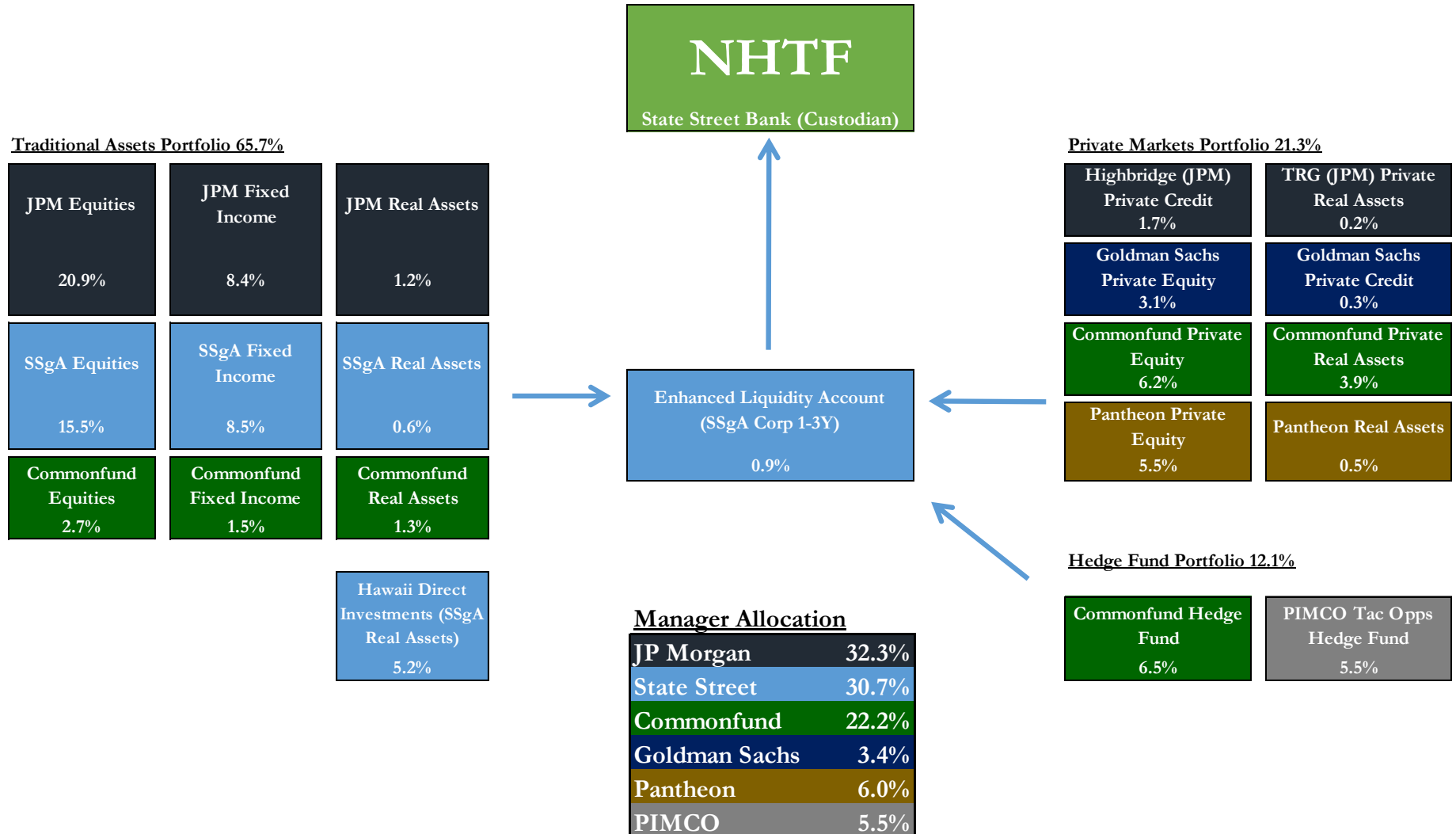
September 2018

John Marco  
*Senior Vice President*

Craig Chaikin, CFA  
*Vice President*

## **Financial Market Conditions**

# OHA 2Q16 Flow Chart Asset Allocation



# Total Trust Fund Fees

	Quarter to Date (9/30/2018)	Year to Date (9/30/2018)	Inception to Date (3/1/2003)
Commonfund	328,770	1,121,272	10,517,399
JP Morgan	189,408	588,818	6,414,995
Pantheon <sub>2</sub>	72,903	215,626	2,162,114
Highbridge <sub>4</sub>	32,265	153,322	1,017,327
Goldman Sachs <sub>1</sub>	40,857	134,627	17,882,708
PIMCO <sub>5</sub>	78,496	123,870	123,870
SSGA	35,557	102,173	354,718
HDI	11,662	34,562	382,610
ELA	2,500	7,500	304,541
<b>Total Advisor Fees<sub>6</sub></b>	<b>792,418</b>	<b>2,481,770</b>	<b>48,187,051</b>
Custody Fees <sub>3</sub>	57,662	172,040	1,624,513
<b>Total Fees:</b>	<b>850,080</b>	<b>2,653,810</b>	<b>49,811,564</b>

<sup>1</sup> Goldman Sachs are lagged by a quarter

<sup>2</sup> Prior to July 2011, Pantheon fees were included with Russell. Fees for Euro denominated funds were converted using the EURO/USD exchange rate

<sup>3</sup> Inception Date for Custody Fees is 1/1/2011. Fees include performance reporting and certain Advisor trading costs.

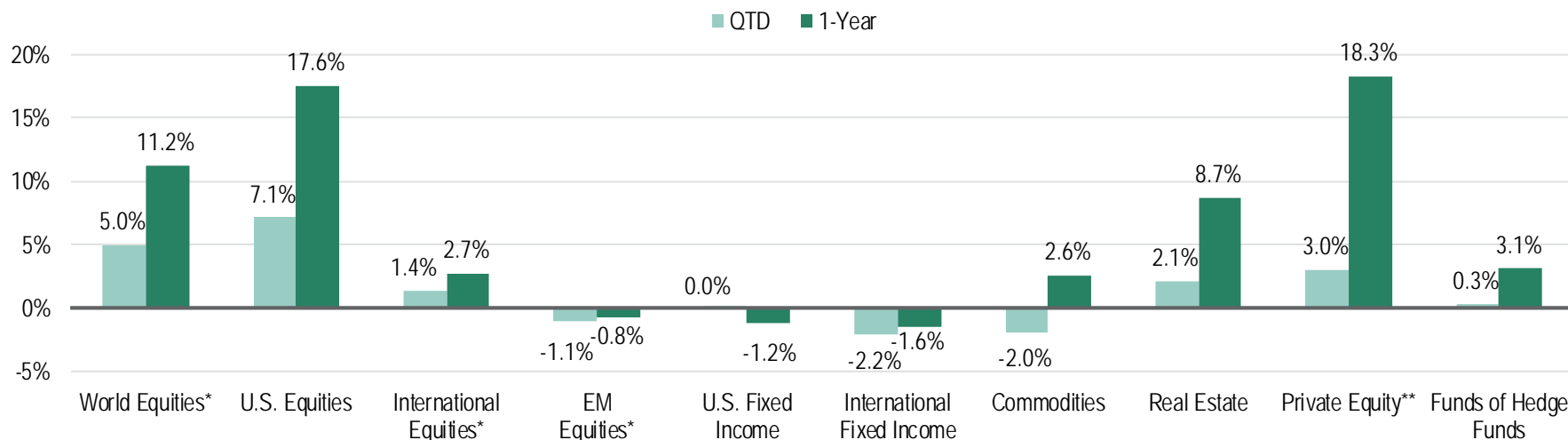
<sup>4</sup> Highbridge fees were embed with JPM and separately reported in Q1 2018

<sup>5</sup> PIMCO Inception Date is Q4 2017

<sup>6</sup> Total Advisor Fees includes \$9m paid to former advisor Russell Investment in inception to date

# Q3 2018 In Review

## Summary of Investment Returns



## Quarterly Synopsis

- World equity markets rose in Q3. Solid economic and earnings data outweighed global policy uncertainty among investors.
- U.S. equity gained during the quarter. A healthy economy and robust earnings led stocks to rise despite global trade concerns.
- International equity was boosted by stronger economic news and the European Central Bank's statement that it would not hike interest rates until at least the summer of 2019.
- Emerging market equity declined again in Q3 amid U.S. dollar strength, slowing growth in China and nervousness about the collapse of the Turkish lira.
- U.S. fixed income was flat for the quarter. Short-term interest rates rose again in Q3, though longer-term yields increased as well.
- Non-U.S. fixed income declined in Q3 as Italian bonds slid.
- Hedge funds were slightly positive in the quarter. Multi-strategy and macro funds were among the best YTD performers.

\* Net of Dividends

\*\* Performance as of Q1 2018 because Q2 2018 and Q3 2018 performance data is not yet available.

Sources: Investment Metrics, Thomson One, FactSet

# Q3 2018 Index Returns

Asset Class	Indices	QTD	YTD	1-Year	3-Year	5-Year	10-Year
World Equity	MSCI World <sup>1</sup>	4.98	5.43	11.24	13.54	9.28	8.56
U.S. Equity	Russell 3000	7.12	10.57	17.58	17.07	13.46	12.01
Non-U.S. Equity	MSCI EAFE <sup>1</sup>	1.35	-1.43	2.74	9.23	4.42	5.38
Emerging Market Equity	MSCI EM <sup>1</sup>	-1.09	-7.68	-0.81	12.36	3.61	5.40
U.S. Fixed Income	Bloomberg Barclays U.S. Aggregate	0.02	-1.60	-1.22	1.31	2.16	3.77
Non-U.S. Fixed Income	FTSE <sup>2</sup> Non-U.S. WGBI (Unhedged)	-2.19	-3.09	-1.57	2.39	-0.23	1.99
Commodities	Bloomberg Commodity Index	-2.02	-2.03	2.59	-0.11	-7.18	-6.24
Private Real Estate	NFI-ODCE	2.09	6.48	8.68	8.80	10.72	5.58
Private Equity	Thomson Reuters Private Equity <sup>3</sup>	3.03	3.03	18.32	12.43	13.96	9.51
Hedge Funds	HFRI Fund of Funds Composite	0.27	0.99	3.08	3.29	3.18	2.55

<sup>1</sup> Net of Dividends

<sup>2</sup> Formerly Citigroup Non-U.S. WGBI. Citigroup's fixed income indices were purchased by London Stock Exchange Group (LSEG) and will all be rebranded to FTSE by July 31, 2018.

FTSE Russell is a unit of LSEG's Information Services Division and a wholly owned subsidiary of LSEG.

<sup>3</sup> Performance as of Q1 2018 because Q2 2018 and Q3 2018 performance data is not yet available.

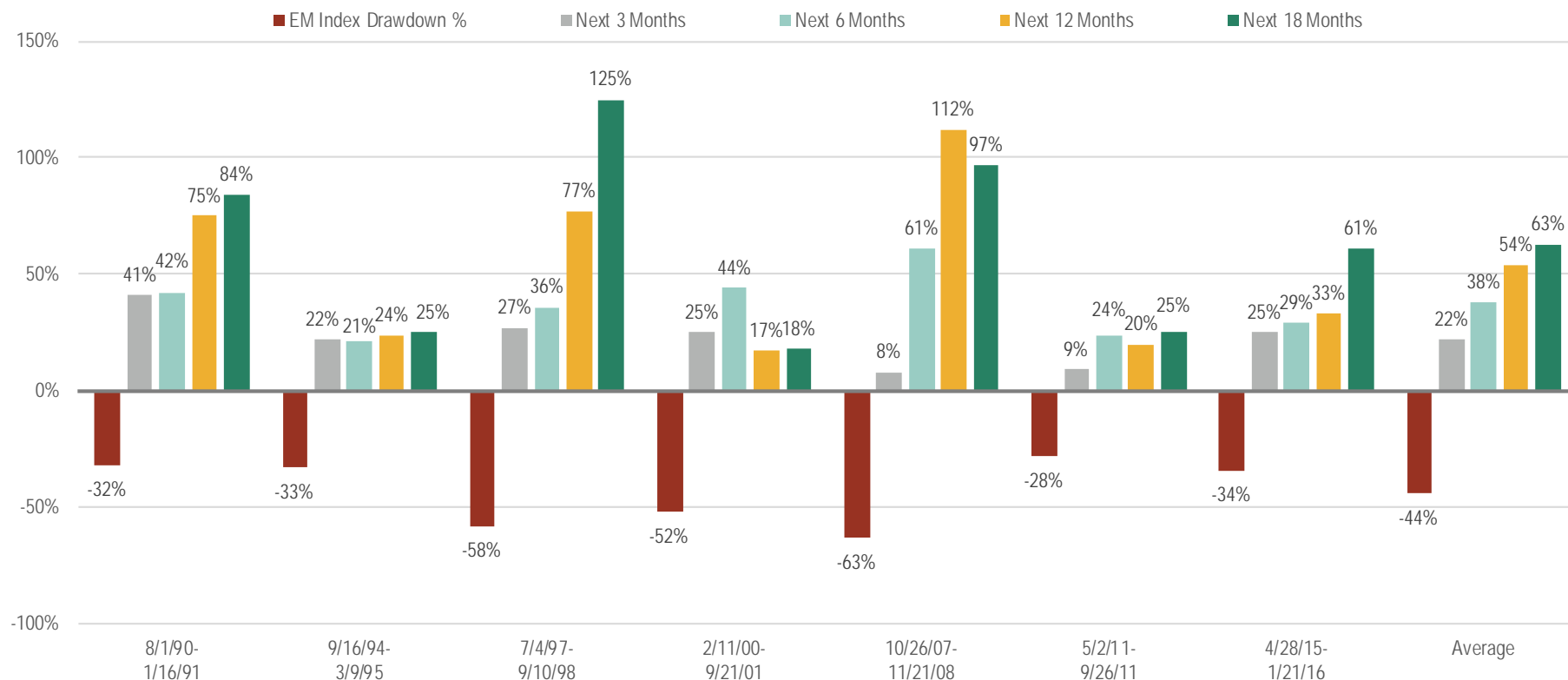
Sources: Investment Metrics, Thomson One, FactSet

# Q3 2018 In Review: Noteworthy Developments

## Emerging Market Equity - Rebounds After Drawdowns

- Emerging market equity returns have been extremely volatile over the last 30 years, but most major declines have been followed by recoveries that have often been nearly as robust as the declines were precipitous.
- The message with EME, therefore, is clear – patience seems to be rewarded over time, but investors with sensitivity to extremes should be aware of that requirement.

Emerging Market Equity Bear Markets and Subsequent Performance





# Q3 2018 In Review: Noteworthy Developments

## Revised Life Expectancy's Impact on Plans

- A Bloomberg study measured the health care efficiency of almost 200 economies, using average lifespan, determining medical costs both as a percentage of income and in absolute dollars.
- Americans' life expectancy declined for the second year in a row. Per the CDC, deaths from drug overdoses, chronic liver disease, suicide, Alzheimer's and blood infections have all gone up, resulting in a shortened average life span.
- Impact on pension plans: Lower life expectancy results in higher mortality tables, which reduces pension liabilities.
- The Society of Actuaries (SOA) annually updates the mortality improvement scale for pension plans. For 2017 and 2018 (which reflects age-adjusted U.S. population mortality rates for 2014-15 and 2015-16, respectively), the mortality rates suggest that life expectancies declined slightly each year. Declines two years in a row are rare – the last time life expectancy fell two years in a row, was 1962-63:
  - The 2017 study suggests the new rates could reduce a pension plan's obligations by 0.7% to 1.0% (using a 4% discount rate).
  - The 2018 study suggests the new rates could reduce a pension plan's obligations by 0.3% to 0.5% (using a 4% discount rate).

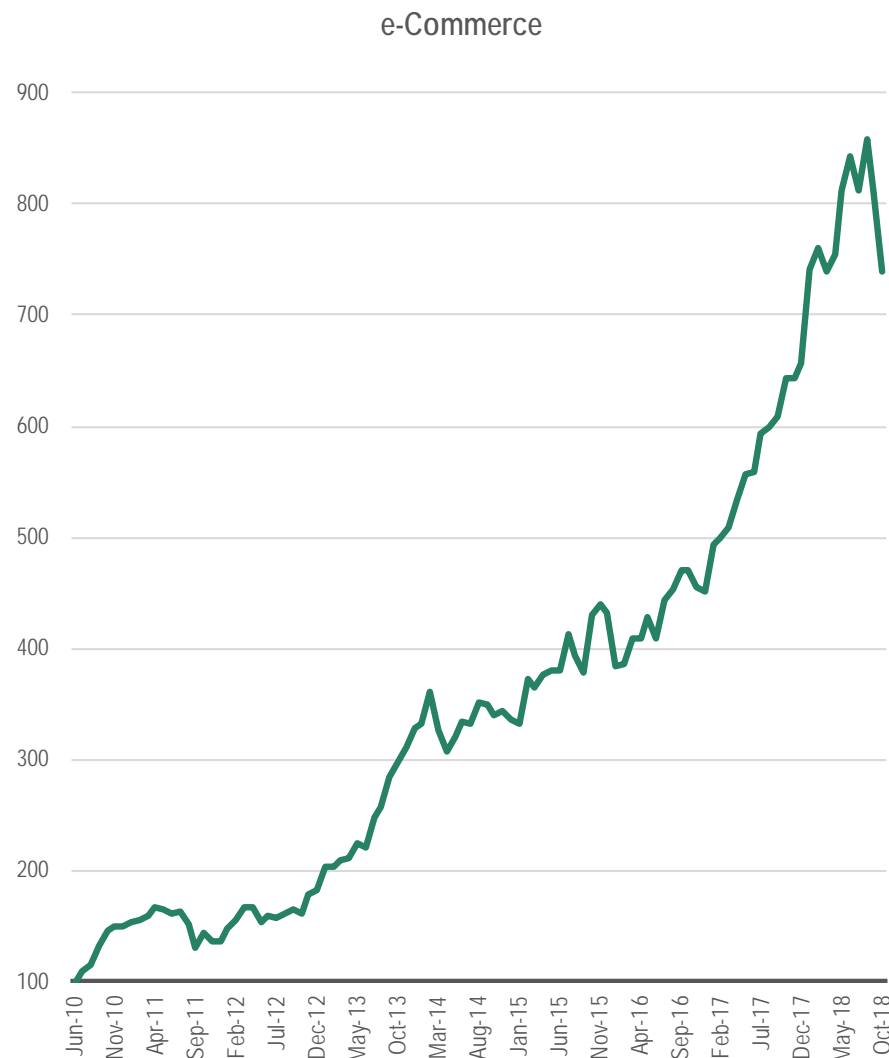
Bloomberg Health Care Efficiency

Rank	Rank 1 Year Ago	Change	Economy	Efficiency Score	Life Expectancy	Relative Cost %	Absolute Cost \$
1	1	-	Hong Kong	87.3	84.3	5.7	2,222
2	2	-	Singapore	85.6	82.7	4.3	2,280
3	3	-	Spain	69.3	82.8	9.2	2,354
4	6	+2	Italy	67.6	82.5	9.0	2,700
5	4	-1	South Korea	67.4	82.0	7.4	2,013
6	7	+1	Israel	67.0	82.1	7.4	2,756
7	5	-2	Japan	64.3	83.8	10.9	3,733
8	10	2	Australia	62.0	82.4	9.4	4,934
54	50	-4	U.S.	29.6	78.7	16.8	9,536

# Q3 2018 In Review: Noteworthy Developments

## Is e-Commerce in Bubble Territory?

- The Dow Jones Internet Commerce Index, which measures the 15 biggest and most actively traded e-commerce stocks (chart at right), is up more than 8x since June 2010 and may now be in bubble territory.
- Increased central bank liquidity, *i.e.* easier access to credit, could be creating an environment for an asset price bubble. Also, the free cash flow yield of the Internet Commerce Index is lower than that of the tech sector in the late 90s (dot-com bubble), making e-Commerce valuations appear frothy in comparison.
- On the other hand, the digital era has fostered business models that lower marginal costs. Many digital technologies are scalable, in that they can be replicated at low or no cost, which is beneficial for the company and, ultimately, the consumer. Improved and less expensive AI capabilities could translate into more product sales, higher subscription premiums or better-focused advertising for internet companies.
- As outlined above, there are points and counterpoints to the question of whether e-Commerce is in a valuation bubble. But it seems likely that investors will see changes to the top players in e-Commerce as technology continues to evolve and digital disruptions keep occurring.



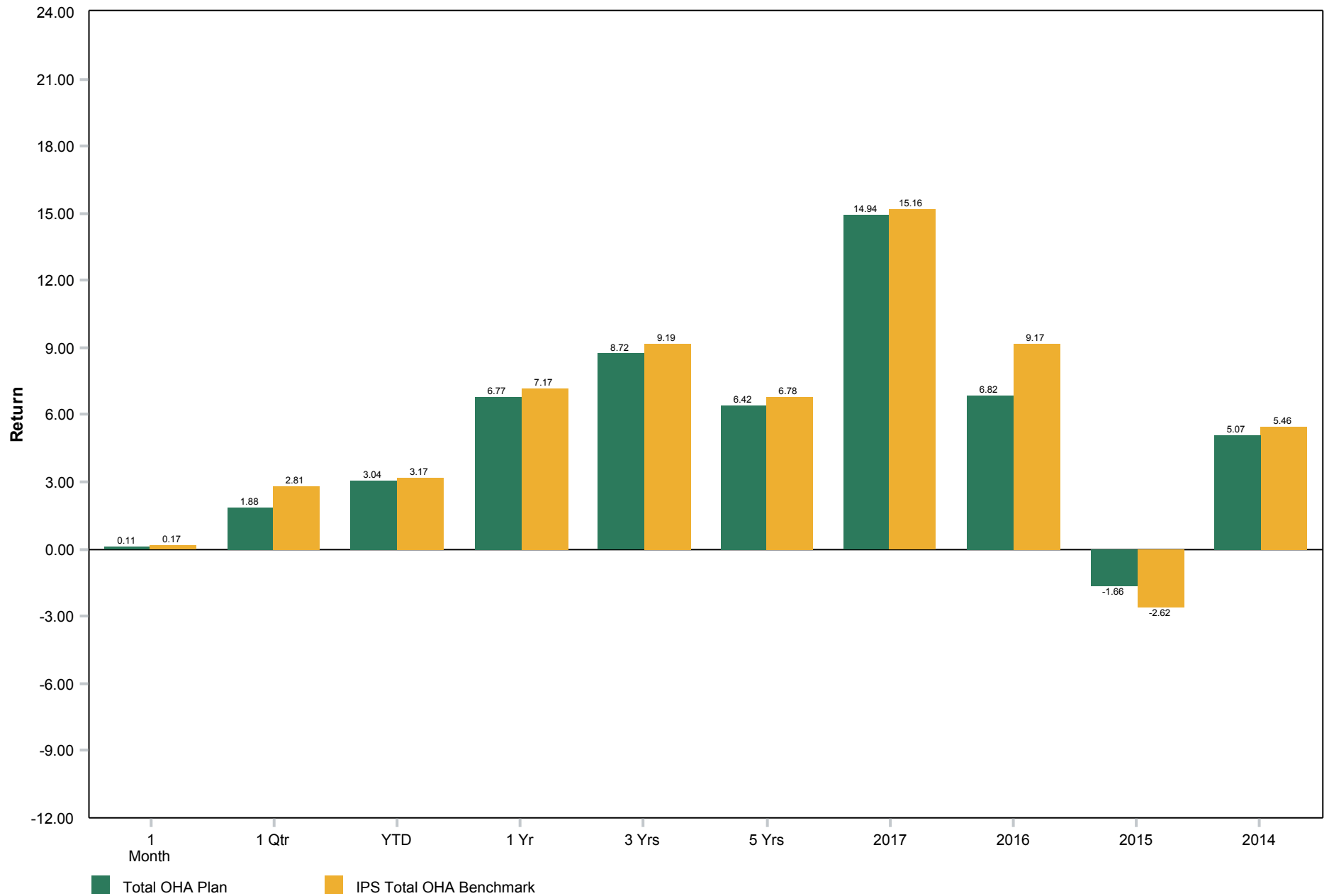
# Annual Asset Class Performance

As of September 30, 2018

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	YTD
Best	31.47	34.54	35.93	39.78	5.24	79.02	29.09	13.56	18.64	43.30	30.38	5.67	31.74	37.75	17.09
	25.95	14.02	32.59	11.81	1.80	58.21	28.47	8.68	18.53	38.82	13.45	2.52	21.31	30.21	15.76
	22.25	12.11	26.86	11.63	-2.35	37.21	26.85	8.46	18.05	34.52	13.24	1.23	17.34	25.62	11.51
	20.70	10.74	23.48	11.63	-10.91	34.47	24.50	7.84	17.90	33.48	13.05	0.92	17.13	22.17	10.49
	18.33	7.05	22.25	7.05	-20.30	32.46	19.20	4.98	17.78	33.11	5.97	0.65	12.05	21.69	7.14
	16.49	6.27	18.37	6.97	-26.16	28.61	16.71	2.64	17.51	32.53	5.60	0.55	11.60	14.65	3.92
	14.31	5.66	15.46	6.28	-28.92	28.43	16.10	1.50	16.42	23.29	5.53	0.03	11.32	13.66	2.57
	11.75	5.26	13.35	5.77	-33.79	28.19	15.51	0.39	16.35	7.90	4.89	-0.39	10.19	9.32	2.30
	11.40	4.71	11.86	4.74	-36.85	27.17	15.12	0.06	15.81	7.44	4.22	-1.38	8.60	7.84	1.98
	11.14	4.55	9.86	1.87	-37.60	24.67	13.16	-2.44	15.26	2.47	3.64	-1.44	7.08	7.50	1.29
	8.46	4.15	9.07	1.81	-37.98	20.58	12.06	-2.91	14.59	0.06	3.40	-3.83	6.36	5.07	-0.84
	8.20	3.01	8.99	-0.17	-38.44	19.69	8.21	-4.18	8.18	-2.02	2.45	-4.41	4.68	4.09	-0.98
	6.30	2.84	4.76	-1.57	-38.54	11.41	6.54	-5.50	6.98	-2.27	0.02	-4.47	2.65	3.54	-1.60
	4.34	2.74	4.34	-9.78	-43.06	5.93	6.31	-11.73	4.21	-6.58	-1.82	-7.47	1.51	3.01	-3.46
Worst	1.24	2.43	0.49	-16.81	-53.18	0.16	0.10	-18.17	0.09	-8.61	-4.48	-14.60	0.27	0.84	-7.39
	Russell 1000 Index	Russell 1000 Value Index	Russell 1000 Growth Index	Russell 2000 Index	Russell 2000 Value Index	Russell 2000 Growth Index	MSCI EAFE Index	MSCI Emerging Markets Index	MSCI U.S. REIT Index	Barclays Agg.	Blmbg. Barc. U.S. TIPS	Blmbg. Barc. U.S. Corp. High Yield	JPM EMBI Global (USD)	HFRI RV: Multi-Strategy Index	FTSE 3 Month T-Bill

## **Total Traditional Assets**

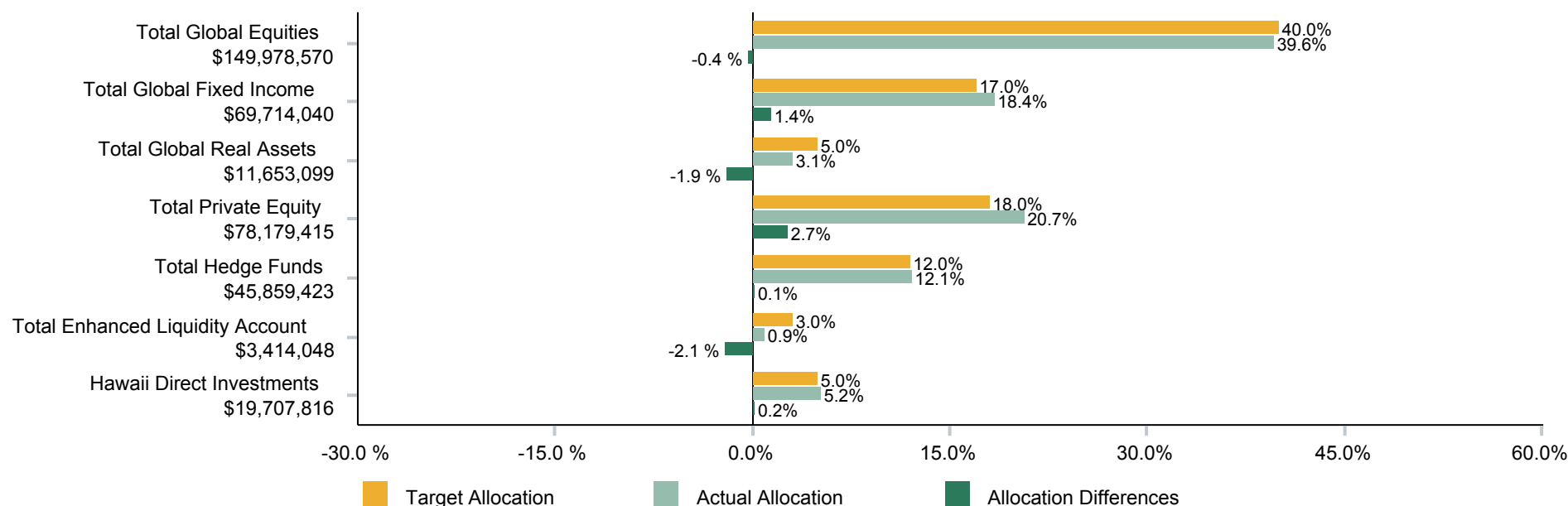
As of September 30, 2018



## Native Hawaiian Trust Fund

## Total OHA Plan

As of September 30, 2018



	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)	Differences (%)	Minimum Allocation (%)	Maximum Allocation (%)
Total OHA Plan	378,506,411	100.00	100.00	0.00	N/A	N/A
Total Global Equities	149,978,570	39.62	40.00	-0.38	22.00	55.00
Total Global Fixed Income	69,714,040	18.42	17.00	1.42	11.00	22.00
Total Global Real Assets	11,653,099	3.08	5.00	-1.92	0.00	11.00
Total Private Equity	78,179,415	20.65	18.00	2.65	0.00	25.60
Total Hedge Funds	45,859,423	12.12	12.00	0.12	6.40	19.20
Total Enhanced Liquidity Account	3,414,048	0.90	3.00	-2.10	0.00	10.00
Hawaii Direct Investments	19,707,816	5.21	5.00	0.21	0.00	10.00

As of September 30, 2018

	Total Fund	
	(\$)	%
<b>Total OHA Plan</b>	<b>378,506,411</b>	<b>100.00</b>
<b>Total Global Equities</b>	<b>149,978,570</b>	<b>39.62</b>
SS Money Market (SALXX)	1,166	0.00
Commonfund Open Cash	1,518,835	0.40
State Street S&P 500 Index Strategy	35,822,524	9.46
JP Morgan US Large Cap Core Plus (JLPSX)	12,000,453	3.17
JP Morgan Intrepid America Fund	6,740,000	1.78
JP Morgan Disciplined Equity R6 (JDEUX)	6,664,105	1.76
JP Morgan Value Advantage Instl (JVAIX)	7,673,437	2.03
JP Morgan Growth Advantage (JGVVX)	8,449,091	2.23
JP Morgan Mid Cap Equity Select (VSNGX)	3,362,601	0.89
JP Morgan US Small Company Instl (JUSSX)	3,642,795	0.96
State Street Global Equity	22,931,137	6.06
Strategic Solutions Global Equity	10,413,183	2.75
JP Morgan Intl Research (OIEAX)	9,440,267	2.49
JP Morgan Intrepid International (JIFFX)	6,848,375	1.81
JP Morgan International Equity R6 (JNEMX)	6,994,915	1.85
JP Morgan Emerging Markets Equity (JMIEX)	4,041,441	1.07
JP Morgan Emerging Economies Select (JEEEX)	3,434,245	0.91
<b>Total Global Fixed Income</b>	<b>69,714,040</b>	<b>18.42</b>
SSGA Funds	71,144	0.02
JPM Open Cash	319,634	0.08
iShares TIPS Bond (TIP)	2,870,147	0.76
JP Morgan Inflation Managed (JRBSX)	2,901,578	0.77
State Street Aggregate Bond IN	32,115,334	8.48
JP Morgan Core Bond (JCBUX)	6,120,523	1.62
JP Morgan Core Plus (HLIPX)	3,653,547	0.97
WAMCO Short Dated High Yield Portfolio	5,754,383	1.52
JP Morgan High Yield R6 (JHYUX)	7,341,461	1.94
JP Morgan Floating Rate Income (JPHSX)	8,324,340	2.20
JP Morgan Emerging Markets Debt (JEMDX)	117,949	0.03
JP Morgan Emerging Mkt Strategic Debt (JECSX)	124,001	0.03

As of September 30, 2018

	Total Fund (\$)	%
<b>Total Global Real Assets</b>	<b>11,653,099</b>	<b>3.08</b>
JPM Realty Income Inst (JPINX)	4,508,713	1.19
State Street Real Asset NL CTF (HWA5)	2,295,161	0.61
SSGA S&P Global Natural Resources Index	1,502,855	0.40
SSGA Tuckerman U.S. REIT Index	2,378,171	0.63
Harvest MLP Income	968,199	0.26
<b>Total Private Equity</b>	<b>78,179,415</b>	<b>20.65</b>
<b>Total Diversified Private Equity</b>	<b>52,863,029</b>	<b>13.97</b>
<b>Total Private Equity Fund of Funds</b>	<b>40,046,244</b>	<b>10.58</b>
Pantheon Europe Fund IV LP	547,293	0.14
Pantheon USA Fund VI LP	1,501,658	0.40
Pantheon Europe Fund VI LP	2,889,548	0.76
Pantheon USA Fund VIII LP	5,350,854	1.41
GS PEP 2004 Offshore	819,580	0.22
GS PEP 2005 Offshore	440,451	0.12
GS PEP Asia Offshore	327,085	0.09
GS PEP IX Offshore	295,887	0.08
GS PEP X Offshore	1,302,402	0.34
Commonfund International Partners VII	2,393,373	0.63
Commonfund Venture Partners X	7,022,361	1.86
Pantheon Emerging Asia Fund VI LP	2,247,166	0.59
Commonfund Private Equity Partners VIII	1,595,965	0.42
GS GEM PEM Off	2,210,641	0.58
Commonfund Emerging Markets Partners 2013	4,643,342	1.23
Commonfund Private Equity Partners IX	1,385,625	0.37
Commonfund International Partners VIII	1,304,257	0.34
Commonfund Venture Partners XI	3,768,756	1.00
<b>Total Private Equity Multi-Strategy</b>	<b>12,816,785</b>	<b>3.39</b>
Pantheon Global Co-Investment Opps II	1,042,813	0.28
Pantheon Global Secondary Fund II LP	117,211	0.03
GS Vintage V Offshore	781,419	0.21
Pantheon Global Secondary Fund IV LP	1,118,100	0.30
GS Vintage VI Offshore	2,090,961	0.55
GS Vintage VII Offshore	2,489,138	0.66



As of September 30, 2018

	Total Fund	
	(\$)	%
Pantheon Global Secondary Fund V	4,915,637	1.30
GS Co-Investment Partners II Offshore	261,506	0.07
<b>Total Private Debt</b>	<b>7,230,883</b>	<b>1.91</b>
GS Mezzanine V	163,147	0.04
Highbridge Offshore Mezzanine Partners II LP	2,426,053	0.64
Highbridge Irish Specialty Loan Fund III	1,242,209	0.33
GS Broad Street Senior Credit Partners	1,124,999	0.30
Highbridge European Asset Value Offshore	2,274,475	0.60
<b>Total Private Real Assets</b>	<b>18,085,503</b>	<b>4.78</b>
Commonfund Natural Resources Partners IX	9,697,877	2.56
JP Morgan Asian I&R Res Opp Fund II	581,044	0.15
GS Broad Street Real Estate Credit Partners II GP, L.L.C.	404,056	0.11
Pantheon Global Infrastructure Fund II	1,742,569	0.46
Commonfund Natural Resources Partners X	5,659,957	1.50
<b>Total Hedge Funds</b>	<b>45,859,423</b>	<b>12.12</b>
Global Absolute Alpha Company	24,795,163	6.55
PIMCO Tactical Opportunities Fund	21,064,260	5.57
<b>Total Enhanced Liquidity Account</b>	<b>3,414,048</b>	<b>0.90</b>
SSGA 1-3 Year U.S. Credit Index (CM2WNON)	3,414,048	0.90
<b>Hawaii Direct Investments</b>	<b>19,707,816</b>	<b>5.21</b>
SSGA Real Asset NL Strategy (HWA4)	19,707,816	5.21
Cash Awaiting Transfer	-	0.00

# Native Hawaiian Trust Fund

# Comparative Performance

As of September 30, 2018

	Allocation		Performance (%)										Expense Ratio
	Market Value (\$000)	%	1 Month	1 Quarter	Year To Date	Jul-2018 To Sep-2018	1 Year	3 Years	5 Years	7 Years	Since Inception	Inception Date	
<b>Total OHA Plan</b>	<b>378,506</b>	<b>100.00</b>	<b>0.11</b>	<b>1.88</b>	<b>3.04</b>	<b>1.88</b>	<b>6.77</b>	<b>8.72</b>	<b>6.42</b>	<b>8.01</b>	<b>6.89</b>	<b>03/01/2003</b>	
IPS Total OHA Benchmark			0.17	2.81	3.17	2.81	7.17	9.19	6.78	8.48	7.61		
All Endowments-Total Fund Median			0.03	2.32	3.20	2.32	7.04	9.24	6.81	8.72	7.89		
Total OHA Plan Rank			38	75	55	75	56	69	62	75	83		
Population			332	332	328	332	326	307	284	258	167		
<b>Total Global Equities</b>	<b>149,979</b>	<b>39.62</b>	<b>0.30</b>	<b>4.29</b>	<b>3.80</b>	<b>4.29</b>	<b>9.66</b>	<b>13.13</b>	<b>8.78</b>	<b>12.23</b>	<b>8.78</b>	<b>03/01/2003</b>	
IPS Global Equities Benchmark			0.44	4.28	3.83	4.28	9.72	13.50	8.71	11.79	9.33		
SS Money Market (SALXX)	1	0.00	0.13	0.40	0.88	0.40	1.09	N/A	N/A	N/A	0.79	12/01/2016	0.37
90 Day U.S. Treasury Bill			0.15	0.49	1.30	0.49	1.59	0.80	0.50	0.37	1.20		
IM U.S. Taxable Money Market (MF) Median			0.14	0.41	1.04	0.41	1.23	0.53	0.33	0.23	0.87		0.49
SS Money Market (SALXX) Rank			58	54	71	54	66	N/A	N/A	N/A	58		
Population			857	853	846	853	832	719	680	662	817		
<b>Commonfund Open Cash</b>	<b>1,519</b>	<b>0.40</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>N/A</b>	<b>0.00</b>	<b>07/01/2012</b>	
90 Day U.S. Treasury Bill			0.15	0.49	1.30	0.49	1.59	0.80	0.50	0.37	0.41		
IM U.S. Cash Fixed Income (SA+CF) Median			0.17	0.59	1.51	0.59	1.82	1.31	1.01	1.01	0.99		
Commonfund Open Cash Rank			97	100	100	100	100	100	100	N/A	100		
Population			55	55	53	55	53	53	48	43	45		
<b>State Street S&amp;P 500 Index Strategy (SSSYX)</b>	<b>35,823</b>	<b>9.46</b>	<b>0.55</b>	<b>7.66</b>	<b>10.55</b>	<b>7.66</b>	<b>17.80</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>21.34</b>	<b>11/01/2016</b>	<b>0.02</b>
S&P 500			0.57	7.71	10.56	7.71	17.91	17.31	13.95	16.91	20.27		
IM U.S. Large Cap Core Equity (MF) Median			0.53	7.24	8.84	7.24	15.93	15.46	12.29	15.63	18.68		0.93
State Street S&P 500 Index Strategy (SSSYX) Rank			49	32	25	32	29	N/A	N/A	N/A	13		
Population			779	768	749	768	722	628	570	513	668		
<b>JP Morgan US Large Cap Core Plus (JLPSX)</b>	<b>12,000</b>	<b>3.17</b>	<b>1.31</b>	<b>8.62</b>	<b>10.68</b>	<b>8.62</b>	<b>18.22</b>	<b>16.45</b>	<b>N/A</b>	<b>N/A</b>	<b>12.27</b>	<b>05/01/2014</b>	<b>0.85</b>
S&P 500			0.57	7.71	10.56	7.71	17.91	17.31	13.95	16.91	12.69		
IM U.S. Large Cap Core Equity (MF) Median			0.53	7.24	8.84	7.24	15.93	15.46	12.29	15.63	11.11		0.93
JP Morgan US Large Cap Core Plus (JLPSX) Rank			7	10	23	10	24	31	N/A	N/A	24		
Population			779	768	749	768	722	628	570	513	581		
<b>JP Morgan Intrepid America Fund (JIAPX)</b>	<b>6,740</b>	<b>1.78</b>	<b>0.04</b>	<b>7.57</b>	<b>N/A</b>	<b>7.57</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>10.29</b>	<b>04/01/2018</b>	<b>0.34</b>
S&P 500			0.57	7.71	10.56	7.71	17.91	17.31	13.95	16.91	11.41		
IM U.S. Large Cap Core Equity (MF) Median			0.53	7.24	8.84	7.24	15.93	15.46	12.29	15.63	10.15		0.93
JP Morgan Intrepid America Fund (JIAPX) Rank			89	37	N/A	37	N/A	N/A	N/A	N/A	47		
Population			779	768	749	768	722	628	570	513	757		
<b>JP Morgan Disciplined Equity R6 (JDEUX)</b>	<b>6,664</b>	<b>1.76</b>	<b>0.79</b>	<b>7.95</b>	<b>9.80</b>	<b>7.95</b>	<b>17.00</b>	<b>15.73</b>	<b>13.03</b>	<b>N/A</b>	<b>14.10</b>	<b>05/01/2012</b>	<b>0.25</b>
S&P 500			0.57	7.71	10.56	7.71	17.91	17.31	13.95	16.91	14.51		
IM U.S. Large Cap Core Equity (MF) Median			0.53	7.24	8.84	7.24	15.93	15.46	12.29	15.63	13.25		0.93
JP Morgan Disciplined Equity R6 (JDEUX) Rank			26	22	38	22	38	44	31	N/A	25		
Population			779	768	749	768	722	628	570	513	539		

# Native Hawaiian Trust Fund

# Comparative Performance

As of September 30, 2018

	Allocation		Performance (%)										Expense Ratio
	Market Value (\$000)	%	1 Month	1 Quarter	Year To Date	Jul-2018 To Sep-2018	1 Year	3 Years	5 Years	7 Years	Since Inception	Inception Date	
<b>JP Morgan Value Advantage Instl (JVAIX)</b>	7,673	2.03	-1.03	4.89	3.77	4.89	10.16	12.54	10.67	N/A	12.46	05/01/2012	0.75
Russell 3000 Value Index			0.00	5.39	4.17	5.39	9.46	13.75	10.65	15.04	12.58		
IM U.S. Multi-Cap Value Equity (MF) Median			-0.19	4.83	3.42	4.83	9.20	13.02	9.65	14.28	11.74		0.97
JP Morgan Value Advantage Instl (JVAIX) Rank			86	48	43	48	40	60	24	N/A	27		
Population			423	423	421	423	417	344	290	260	277		
<b>JP Morgan Growth Advantage (JGVVX)</b>	8,449	2.23	-0.20	8.57	20.24	8.57	29.00	21.11	17.04	N/A	17.49	05/01/2012	0.64
Russell 3000 Growth Index			0.33	8.88	16.99	8.88	25.89	20.36	16.23	18.60	16.08		
IM U.S. Multi-Cap Growth Equity (MF) Median			0.11	7.63	14.98	7.63	22.50	17.12	13.25	16.71	14.06		1.14
JP Morgan Growth Advantage (JGVVX) Rank			70	31	19	31	16	11	7	N/A	7		
Population			564	564	553	564	550	488	423	363	379		
<b>JP Morgan Mid Cap Equity Select (VSNGX)</b>	3,363	0.89	-0.93	5.81	8.91	5.81	14.56	13.68	11.88	N/A	14.93	06/01/2012	0.89
Russell Midcap Index			-0.64	5.00	7.46	5.00	13.98	14.52	11.65	16.09	14.89		
IM U.S. Multi-Cap Growth Equity (MF) Median			0.11	7.63	14.98	7.63	22.50	17.12	13.25	16.71	15.62		1.14
JP Morgan Mid Cap Equity Select (VSNGX) Rank			95	77	92	77	90	83	71	N/A	63		
Population			564	564	553	564	550	488	423	363	381		
<b>JP Morgan US Small Company Instl (JUSSX)</b>	3,643	0.96	-3.21	1.00	8.30	1.00	12.02	14.32	10.42	N/A	15.19	06/01/2012	0.81
Russell 2000 Index			-2.41	3.58	11.51	3.58	15.24	17.12	11.07	16.43	15.05		
IM U.S. Small Cap Core Equity (MF) Median			-2.67	1.87	8.31	1.87	11.37	15.36	10.12	15.28	14.28		1.30
JP Morgan US Small Company Instl (JUSSX) Rank			70	62	51	62	42	60	45	N/A	36		
Population			113	112	111	112	110	100	76	68	72		
<b>State Street Global Equity (SSGLX)</b>	22,931	6.06	0.48	0.78	-2.90	0.78	1.86	N/A	N/A	N/A	12.76	11/01/2016	0.06
MSCI AC World ex USA			0.50	0.80	-2.67	0.80	2.25	10.49	4.60	7.74	12.18		
IM International Large Cap Core Equity (MF) Median			0.62	0.49	-2.62	0.49	1.35	8.17	3.65	8.07	11.20		1.03
State Street Global Equity (SSGLX) Rank			58	34	60	34	29	N/A	N/A	N/A	16		
Population			85	84	82	84	75	63	55	52	72		
<b>Strategic Solutions Global Equity</b>	10,413	2.75	0.50	4.38	3.51	4.38	8.83	12.67	N/A	N/A	7.24	07/01/2014	
MSCI AC World Index (Net)			0.44	4.28	3.83	4.28	9.77	13.40	8.67	11.62	6.94		
IM Global Equity (SA+CF) Median			0.17	3.63	3.99	3.63	9.64	13.03	9.50	13.17	7.71		
Strategic Solutions Global Equity Rank			34	37	55	37	55	57	N/A	N/A	56		
Population			486	485	484	485	482	450	408	340	428		
<b>JP Morgan Intl Research (OIEAX)</b>	9,440	2.49	1.15	0.50	-2.44	0.50	0.79	N/A	N/A	N/A	0.79	10/01/2017	0.35
MSCI EAFE (Net)			0.87	1.35	-1.43	1.35	2.74	9.23	4.42	8.30	2.74		
IM International Large Cap Core Equity (MF) Median			0.62	0.49	-2.62	0.49	1.35	8.17	3.65	8.07	1.35		1.03
JP Morgan Intl Research (OIEAX) Rank			15	50	47	50	65	N/A	N/A	N/A	65		
Population			85	84	82	84	75	63	55	52	75		

# Native Hawaiian Trust Fund

# Comparative Performance

As of September 30, 2018

	Allocation		Performance (%)										Expense Ratio
	Market Value (\$000)	%	1 Month	1 Quarter	Year To Date	Jul-2018 To Sep-2018	1 Year	3 Years	5 Years	7 Years	Since Inception	Inception Date	
JP Morgan Intrepid International (JIFFX)	6,848	1.81	0.88	1.02	-3.11	1.02	-0.09	7.85	4.30	N/A	6.82	05/01/2012	0.55
MSCI EAFE (Net)			0.87	1.35	-1.43	1.35	2.74	9.23	4.42	8.30	7.13		
IM International Equity (MF) Median			-0.16	-0.27	-3.92	-0.27	0.07	9.15	3.98	7.71	6.03		1.18
JP Morgan Intrepid International (JIFFX) Rank			19	25	41	25	52	70	45	N/A	36		
Population			3,307	3,284	3,185	3,284	3,124	2,637	2,090	1,723	1,828		
JP Morgan International Equity R6 (JNEMX)	6,995	1.85	0.23	-0.80	-5.70	-0.80	-0.46	9.04	3.59	N/A	5.90	05/01/2012	0.50
MSCI EAFE (Net)			0.87	1.35	-1.43	1.35	2.74	9.23	4.42	8.30	7.13		
IM International Large Cap Core Equity (MF) Median			0.62	0.49	-2.62	0.49	1.35	8.17	3.65	8.07	6.46		1.03
JP Morgan International Equity R6 (JNEMX) Rank			67	96	89	96	83	20	52	N/A	66		
Population			85	84	82	84	75	63	55	52	52		
JP Morgan Emerging Markets Equity (JMIEIX)	4,041	1.07	-1.57	-3.13	-10.16	-3.13	-3.50	13.42	4.40	5.66	1.99	07/01/2011	0.95
MSCI EM (net)			-0.53	-1.09	-7.68	-1.09	-0.81	12.36	3.61	5.03	1.22		
IM Emerging Markets Equity (MF) Median			-0.97	-2.44	-9.73	-2.44	-3.97	10.24	2.92	4.70	0.84		1.34
JP Morgan Emerging Markets Equity (JMIEIX) Rank			67	58	55	58	45	10	18	31	25		
Population			895	890	858	890	845	723	515	375	356		
JP Morgan Emerging Economies Select (JEESX)	3,434	0.91	0.08	-2.60	-12.40	-2.60	-8.07	9.13	1.37	3.80	-0.47	07/01/2011	0.89
MSCI EM (net)			-0.53	-1.09	-7.68	-1.09	-0.81	12.36	3.61	5.03	1.22		
IM Emerging Markets Equity (MF) Median			-0.97	-2.44	-9.73	-2.44	-3.97	10.24	2.92	4.70	0.84		1.34
JP Morgan Emerging Economies Select (JEESX) Rank			22	51	75	51	85	63	77	74	81		
Population			895	890	858	890	845	723	515	375	356		
<b>Total Global Fixed Income</b>	<b>69,714</b>	<b>18.42</b>	<b>-0.24</b>	<b>0.66</b>	<b>-0.60</b>	<b>0.66</b>	<b>-0.18</b>	<b>3.78</b>	<b>2.41</b>	<b>2.93</b>	<b>4.46</b>	<b>03/01/2003</b>	
IPS Global Fixed Income Benchmark			-0.64	0.02	-1.60	0.02	-1.40	4.30	3.09	3.00	4.12		
SSGA Funds	71	0.02	0.14	0.39	1.00	0.39	1.19	0.52	N/A	N/A	0.32	11/01/2013	
90 Day U.S. Treasury Bill			0.15	0.49	1.30	0.49	1.59	0.80	0.50	0.37	0.50		
IM U.S. Cash Fixed Income (SA+CF) Median			0.17	0.59	1.51	0.59	1.82	1.31	1.01	1.01	1.02		
SSGA Funds Rank			82	97	99	97	97	100	N/A	N/A	100		
Population			55	55	53	55	53	53	48	43	48		
JPM Open Cash	320	0.08	0.00	0.00	0.03	0.00	0.03	0.01	0.01	0.00	0.00	07/01/2011	
90 Day U.S. Treasury Bill			0.15	0.49	1.30	0.49	1.59	0.80	0.50	0.37	0.36		
IM U.S. Cash Fixed Income (SA+CF) Median			0.17	0.59	1.51	0.59	1.82	1.31	1.01	1.01	0.96		
JPM Open Cash Rank			97	100	100	100	100	100	100	100	100		
Population			55	55	53	55	53	53	48	43	43		
iShares TIPS Bond (TIP)	2,870	0.76	-0.97	-0.88	-0.93	-0.88	N/A	N/A	N/A	N/A	0.08	11/01/2017	0.20
Blmbg. Barc. U.S. TIPS			-1.05	-0.82	-0.84	-0.82	0.41	2.04	1.37	1.33	0.19		
IM U.S. TIPS (MF) Median			-0.85	-0.72	-0.89	-0.72	0.29	1.82	0.72	0.88	0.07		0.73
iShares TIPS Bond (TIP) Rank			64	72	56	72	N/A	N/A	N/A	N/A	50		
Population			252	252	243	252	243	211	167	143	243		

# Native Hawaiian Trust Fund

# Comparative Performance

As of September 30, 2018

	Allocation		Performance (%)										Expense Ratio
	Market Value (\$000)	%	1 Month	1 Quarter	Year To Date	Jul-2018 To Sep-2018	1 Year	3 Years	5 Years	7 Years	Since Inception	Inception Date	
JP Morgan Inflation Managed (JRBSX)	2,902	0.77	-0.32	0.27	0.03	0.27	N/A	N/A	N/A	N/A	0.34	11/01/2017	0.60
Blmbg. Barc. U.S. TIPS 1-10 Year			-0.70	-0.42	-0.20	-0.42	0.33	1.65	0.94	0.98	0.16		
IM U.S. TIPS (MF) Median			-0.85	-0.72	-0.89	-0.72	0.29	1.82	0.72	0.88	0.07		0.73
JP Morgan Inflation Managed (JRBSX) Rank			26	11	28	11	N/A	N/A	N/A	N/A	32		
Population			252	252	243	252	243	211	167	143	243		
State Street Aggregate Bond Index (SSFEX)	32,115	8.48	-0.71	-0.04	-1.71	-0.04	-1.43	N/A	N/A	N/A	-0.57	11/01/2016	0.03
Blmbg. Barc. U.S. Aggregate			-0.64	0.02	-1.60	0.02	-1.22	1.31	2.16	2.02	-0.20		
IM U.S. Broad Market Core Fixed Income (MF) Median			-0.56	0.10	-1.67	0.10	-1.35	1.34	2.06	2.16	-0.13		0.71
State Street Aggregate Bond Index (SSFEX) Rank			88	72	57	72	58	N/A	N/A	N/A	77		
Population			548	545	530	545	522	461	400	359	486		
JP Morgan Core Bond (JCBUX)	6,121	1.62	-0.64	0.03	-1.32	0.03	N/A	N/A	N/A	N/A	-0.96	11/01/2017	0.35
Blmbg. Barc. U.S. Aggregate			-0.64	0.02	-1.60	0.02	-1.22	1.31	2.16	2.02	-1.27		
IM U.S. Broad Market Core Fixed Income (MF) Median			-0.56	0.10	-1.67	0.10	-1.35	1.34	2.06	2.16	-1.39		0.71
JP Morgan Core Bond (JCBUX) Rank			75	62	24	62	N/A	N/A	N/A	N/A	22		
Population			548	545	530	545	522	461	400	359	522		
JP Morgan Core Plus (HLIPX)	3,654	0.97	-0.60	0.15	-1.21	0.15	N/A	N/A	N/A	N/A	-0.98	11/01/2017	0.46
Blmbg. Barc. U.S. Aggregate			-0.64	0.02	-1.60	0.02	-1.22	1.31	2.16	2.02	-1.27		
IM U.S. Broad Market Core+ Fixed Income (MF) Median			-0.43	0.26	-1.52	0.26	-1.24	2.15	2.42	2.90	-1.32		0.80
JP Morgan Core Plus (HLIPX) Rank			77	59	31	59	N/A	N/A	N/A	N/A	35		
Population			312	308	285	308	274	219	197	169	278		
WAMCO Short Dated High Yield Portfolio	5,754	1.52	0.48	2.57	3.63	2.57	3.75	4.24	N/A	N/A	1.36	12/01/2013	
Blmbg. Barc. U.S. High Yield Ba/B 2% Issuer Cap			0.43	2.30	1.79	2.30	2.20	7.12	5.25	7.12	4.82		
IM U.S. High Yield Bonds (SA+CF) Median			0.52	2.26	2.46	2.26	3.14	7.33	5.40	7.52	4.98		
WAMCO Short Dated High Yield Portfolio Rank			62	19	17	19	31	94	N/A	N/A	99		
Population			176	176	175	176	175	164	152	132	153		
JP Morgan High Yield R6 (JHYUX)	7,341	1.94	0.61	2.30	2.38	2.30	2.75	6.89	4.77	N/A	5.56	05/01/2012	0.60
Blmbg. Barc. U.S. High Yield - 2% Issuer Cap			0.56	2.40	2.57	2.40	3.05	8.15	5.55	7.65	6.28		
IM U.S. High Yield Bonds (MF) Median			0.48	2.11	1.82	2.11	2.27	6.46	4.30	6.53	5.18		1.00
JP Morgan High Yield R6 (JHYUX) Rank			25	32	28	32	34	37	30	N/A	30		
Population			704	699	684	699	667	569	475	381	414		
JP Morgan Floating Rate Income (JPHSX)	8,324	2.20	0.69	1.77	3.31	1.77	3.48	N/A	N/A	N/A	3.48	10/01/2017	0.75
Credit Suisse Leveraged Loan Index			0.68	1.93	4.36	1.93	5.58	5.43	4.35	5.45	5.58		
IM U.S. Bank Loans (MF) Median			0.59	1.68	3.30	1.68	4.38	4.64	3.46	4.54	4.38		1.08
JP Morgan Floating Rate Income (JPHSX) Rank			12	36	50	36	90	N/A	N/A	N/A	90		
Population			248	247	241	247	233	208	180	142	233		

# Native Hawaiian Trust Fund

# Comparative Performance

As of September 30, 2018

	Allocation		Performance (%)										Expense Ratio
	Market Value (\$000)	%	1 Month	1 Quarter	Year To Date	Jul-2018 To Sep-2018	1 Year	3 Years	5 Years	7 Years	Since Inception	Inception Date	
JP Morgan Emerging Markets Debt (JEMDX)	118	0.03	1.58	1.99	-3.82	1.99	-2.78	5.28	3.71	4.87	4.26	07/01/2011	0.95
JPM EMBI Global Diversified			1.51	2.30	-3.04	2.30	-1.92	6.04	5.38	5.87	5.35		
IM Emerging Markets Debt (MF) Median			1.75	1.26	-4.77	1.26	-4.05	5.34	3.24	4.63	3.81		1.08
JP Morgan Emerging Markets Debt (JEMDX) Rank			57	12	27	12	27	53	38	43	28		
Population			291	289	285	289	278	227	169	96	92		
JP Morgan Emerging Mkt Strategic Debt (JECSX)	124	0.03	1.25	1.79	-3.69	1.79	-2.74	5.02	-2.24	N/A	-3.44	01/01/2013	0.95
JPM GBI-EM Global Diversified			2.59	-1.83	-8.15	-1.83	-7.40	5.17	-1.68	-0.05	-2.80		
IM Emerging Markets Debt (MF) Median			1.75	1.26	-4.77	1.26	-4.05	5.34	3.24	4.63	1.57		1.08
JP Morgan Emerging Mkt Strategic Debt (JECSX) Rank			82	19	25	19	26	62	95	N/A	94		
Population			291	289	285	289	278	227	169	96	139		
<b>Total Global Real Assets</b>	<b>11,653</b>	<b>3.08</b>	<b>-1.32</b>	<b>-0.07</b>	<b>1.61</b>	<b>-0.07</b>	<b>4.68</b>	<b>6.20</b>	<b>5.72</b>	<b>9.38</b>	<b>8.09</b>	<b>11/01/2003</b>	
IPS Real Asset Benchmark			-2.06	-0.30	0.06	-0.30	3.66	6.19	5.43	9.28	7.72		
JPM Realty Income Inst (JPINX)	4,509	1.19	-2.73	0.23	0.34	0.23	2.43	3.67	7.45	8.63	7.74	07/01/2011	0.68
Wilshire US REIT Index			-2.75	0.72	2.25	0.72	3.99	7.08	9.25	11.70	8.87		
IM Real Estate Sector (MF) Median			-2.46	0.64	1.04	0.64	3.29	6.68	8.44	10.84	7.98		1.14
JPM Realty Income Inst (JPINX) Rank			78	79	69	79	69	100	82	98	60		
Population			269	265	256	265	250	219	192	171	165		
State Street Real Asset NL CTF	2,295	0.61	0.46	-0.63	0.07	-0.63	3.84	N/A	N/A	N/A	5.83	12/01/2016	
FTSE EPRA/NAREIT Developed Index (Net)			-2.06	-0.30	0.06	-0.30	3.66	6.19	5.43	9.28	7.22		
Global Real Assets (MF) Median			0.18	0.21	-0.15	0.21	2.77	5.64	-2.75	0.83	2.43		
State Street Real Asset NL CTF Rank			48	60	49	60	45	N/A	N/A	N/A	36		
Population			730	720	680	720	669	584	485	379	629		
SSGA S&P Global Natural Resources Index	1,503	0.40	3.75	1.12	3.89	1.12	11.82	16.54	1.69	N/A	4.12	01/01/2013	
S&P Global Natural Resources Sector Index			3.61	1.32	5.07	1.32	14.09	19.69	4.12	4.63	3.05		
IM Global Natural Resources (MF) Median			1.87	0.07	0.55	0.07	8.03	9.19	-2.24	1.24	-0.23		
SSGA S&P Global Natural Resources Index Rank			7	34	20	34	20	6	22	N/A	21		
Population			115	115	113	115	113	106	99	90	98		
SSGA Tuckerman U.S. REIT Index	2,378	0.63	-2.72	0.73	2.52	0.73	4.54	6.49	8.69	N/A	7.89	01/01/2013	
FTSE NAREIT All REITs Index			-2.36	0.69	1.80	0.69	4.22	9.21	9.66	12.22	8.89		
IM U.S. REIT (SA+CF) Median			-2.34	0.81	2.41	0.81	4.64	8.00	9.70	12.25	8.92		
SSGA Tuckerman U.S. REIT Index Rank			85	62	41	62	60	92	92	N/A	93		
Population			53	53	53	53	52	52	50	47	49		
Harvest MLP Income	968	0.26	-2.10	3.65	N/A	3.65	N/A	N/A	N/A	N/A	11.56	03/01/2018	
Alerian MLP Index			-1.57	6.57	5.90	6.57	4.89	4.43	-2.72	3.67	10.88		

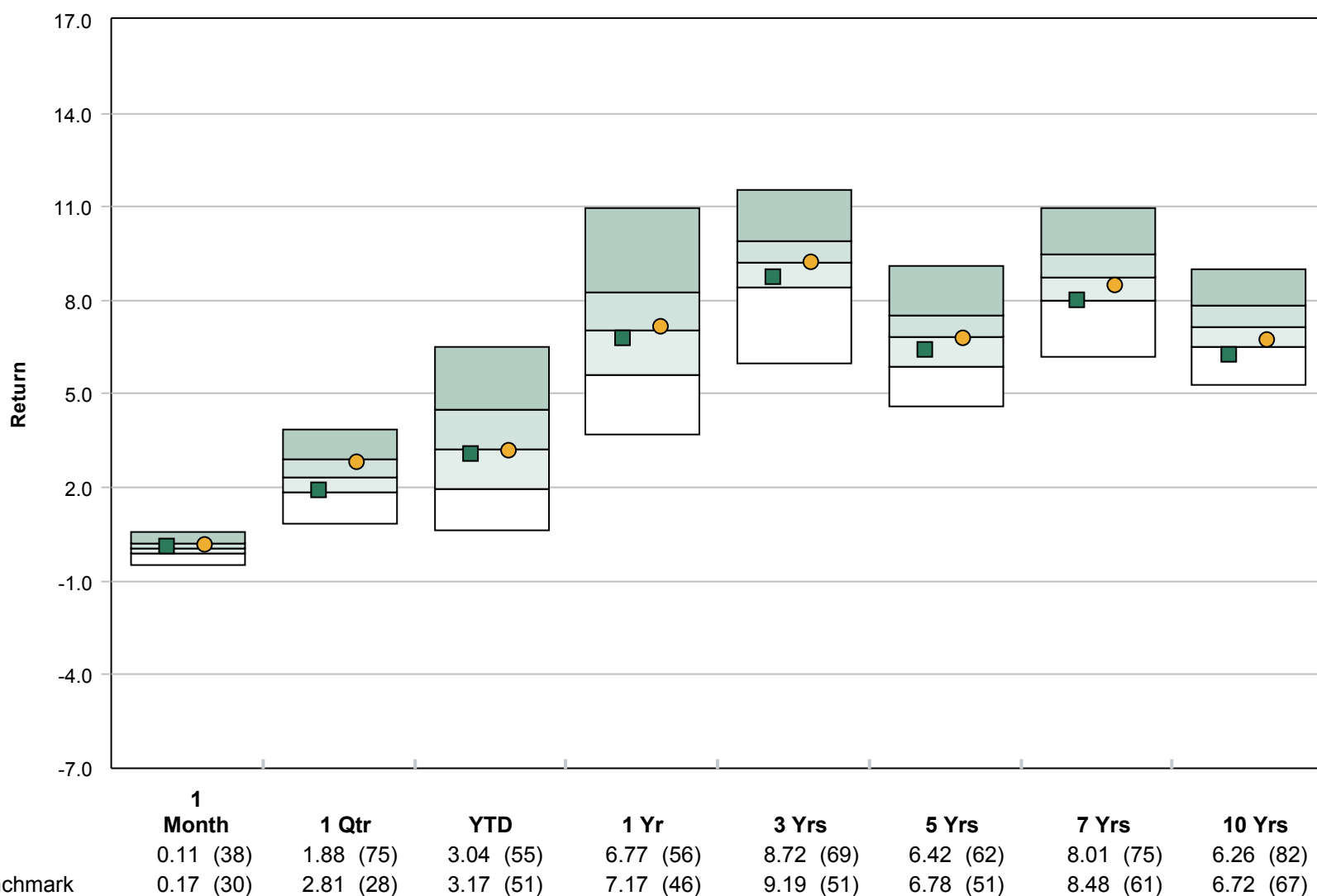
# Native Hawaiian Trust Fund

# Comparative Performance

As of September 30, 2018

	Allocation		Performance (%)										Expense Ratio
	Market Value (\$000)	%	1 Month	1 Quarter	Year To Date	Jul-2018 To Sep-2018	1 Year	3 Years	5 Years	7 Years	Since Inception	Inception Date	
<b>Total Hedge Funds</b>	<b>45,859</b>	<b>12.12</b>	<b>0.51</b>	<b>1.09</b>	<b>4.35</b>	<b>1.09</b>	<b>4.70</b>	<b>2.48</b>	<b>2.90</b>	<b>3.15</b>	<b>3.82</b>	<b>05/01/2017</b>	
IPS Hedge Fund Benchmark			0.48	1.48	4.33	1.48	5.66	4.84	4.52	5.68	5.46		
Global Absolute Alpha Company	24,795	6.55	0.73	1.28	2.95	1.28	3.29	1.89	2.14	3.58	2.52	08/01/2011	
90 Day T-Bills +4%			0.48	1.48	4.33	1.48	5.66	4.87	4.54	4.41	4.40		
Fund of Funds Hedge Funds Median			0.07	-0.56	-2.92	-0.56	-0.97	2.43	0.07	1.29	N/A		
Global Absolute Alpha Company Rank			25	14	13	14	18	59	29	25	N/A		
Population			965	959	944	959	936	847	781	703	N/A		
<b>PIMCO Tactical Opportunities Fund</b>	<b>21,064</b>	<b>5.57</b>	<b>0.26</b>	<b>0.87</b>	<b>N/A</b>	<b>0.87</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>5.20</b>	<b>02/01/2018</b>	
Bimbg. Barc. U.S. Aggregate			-0.64	0.02	-1.60	0.02	-1.22	1.31	2.16	2.02	-0.45		
Multi-Strategy Hedge Funds-[TASS] Median			3.45	-1.91	-12.57	-1.91	-15.31	10.35	-0.82	-0.49	N/A		
PIMCO Tactical Opportunities Fund Rank			84	20	N/A	20	N/A	N/A	N/A	N/A	N/A		
Population			661	661	652	661	644	622	589	501	N/A		
<b>Total Enhanced Liquidity Account</b>	<b>3,414</b>	<b>0.90</b>	<b>0.04</b>	<b>0.63</b>	<b>0.75</b>	<b>0.63</b>	<b>0.65</b>	<b>0.84</b>	<b>1.70</b>	<b>3.50</b>	<b>4.04</b>	<b>07/01/2010</b>	
IPS Enhanced Liquidity Account Benchmark			-0.12	0.19	0.24	0.19	-0.04	0.88	1.96	3.33	3.47		
SSGA 1-3 Year U.S. Credit Index (CM2WNON)	3,414	0.90	0.04	0.63	0.75	0.63	0.65	N/A	N/A	N/A	0.97	02/01/2017	
Bimbg. Barc. 1-3 Year Credit			0.03	0.62	0.73	0.62	0.66	1.43	1.39	1.71	1.27		
IM U.S. Short Duration Fixed Income (SA+CF) Median			0.00	0.48	0.69	0.48	0.69	1.17	1.29	1.39	1.21		
SSGA 1-3 Year U.S. Credit Index (CM2WNON) Rank			32	17	43	17	52	N/A	N/A	N/A	71		
Population			118	118	118	118	118	114	109	104	117		
<b>Hawaii Direct Investments</b>	<b>19,708</b>	<b>5.21</b>	<b>0.46</b>	<b>-0.63</b>	<b>0.07</b>	<b>-0.63</b>	<b>3.84</b>	<b>6.74</b>	<b>1.08</b>	<b>1.86</b>	<b>2.14</b>	<b>07/01/2010</b>	
IPS Hawaii Direct Investment Benchmark			-0.81	-0.08	1.38	-0.08	3.42	6.75	1.13	2.07	1.64		
SSGA Real Asset NL Strategy	19,708	5.21	0.46	-0.63	0.07	-0.63	3.84	6.87	1.26	N/A	0.74	06/01/2013	
FTSE EPRA/NAREIT Developed Index (Net)			-2.06	-0.30	0.06	-0.30	3.66	6.19	5.43	9.28	4.98		
Global Real Assets (MF) Median			0.18	0.21	-0.15	0.21	2.77	5.64	-2.75	0.83	-2.41		
SSGA Real Asset NL Strategy Rank			48	60	49	60	45	42	28	N/A	32		
Population			730	720	680	720	669	584	485	379	463		

As of September 30, 2018

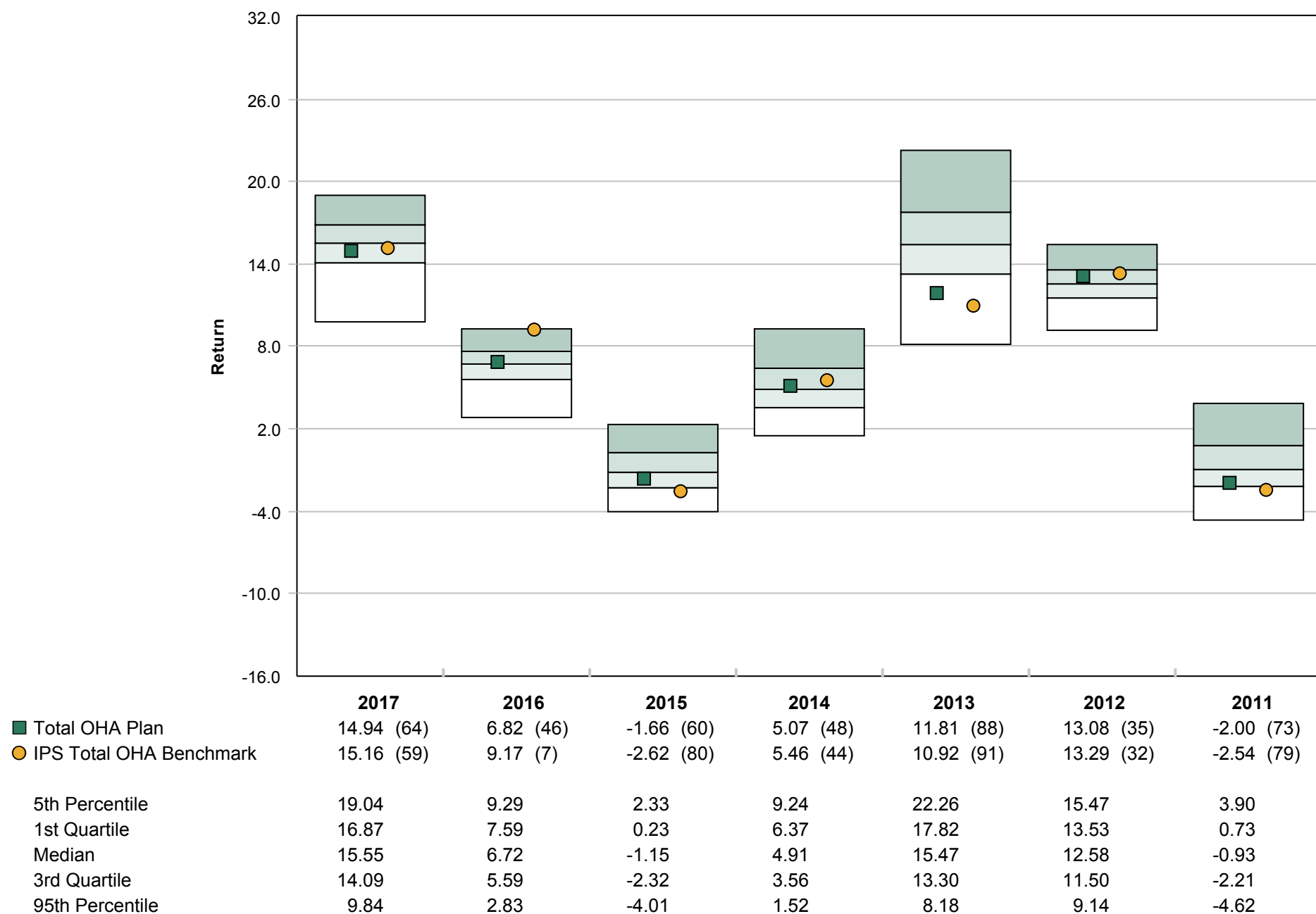


5th Percentile	0.60	3.88	6.49	10.98	11.56	9.09	10.94	9.00
1st Quartile	0.21	2.91	4.51	8.25	9.88	7.52	9.48	7.83
Median	0.03	2.32	3.20	7.04	9.24	6.81	8.72	7.17
3rd Quartile	-0.12	1.87	1.96	5.58	8.40	5.85	7.99	6.50
95th Percentile	-0.47	0.85	0.64	3.68	6.01	4.60	6.19	5.28

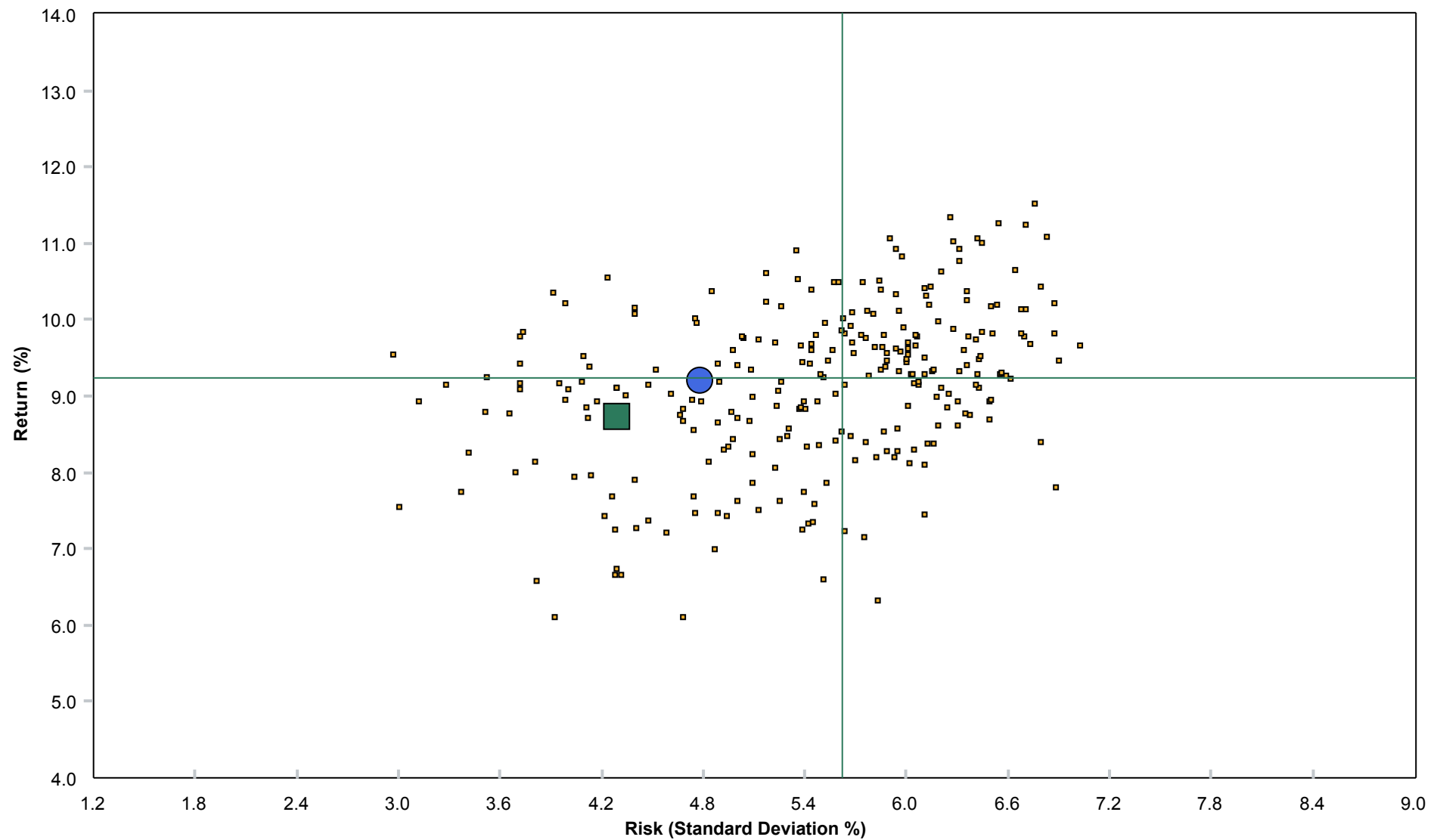
Parentheses contain percentile rankings.  
Calculation based on monthly periodicity.



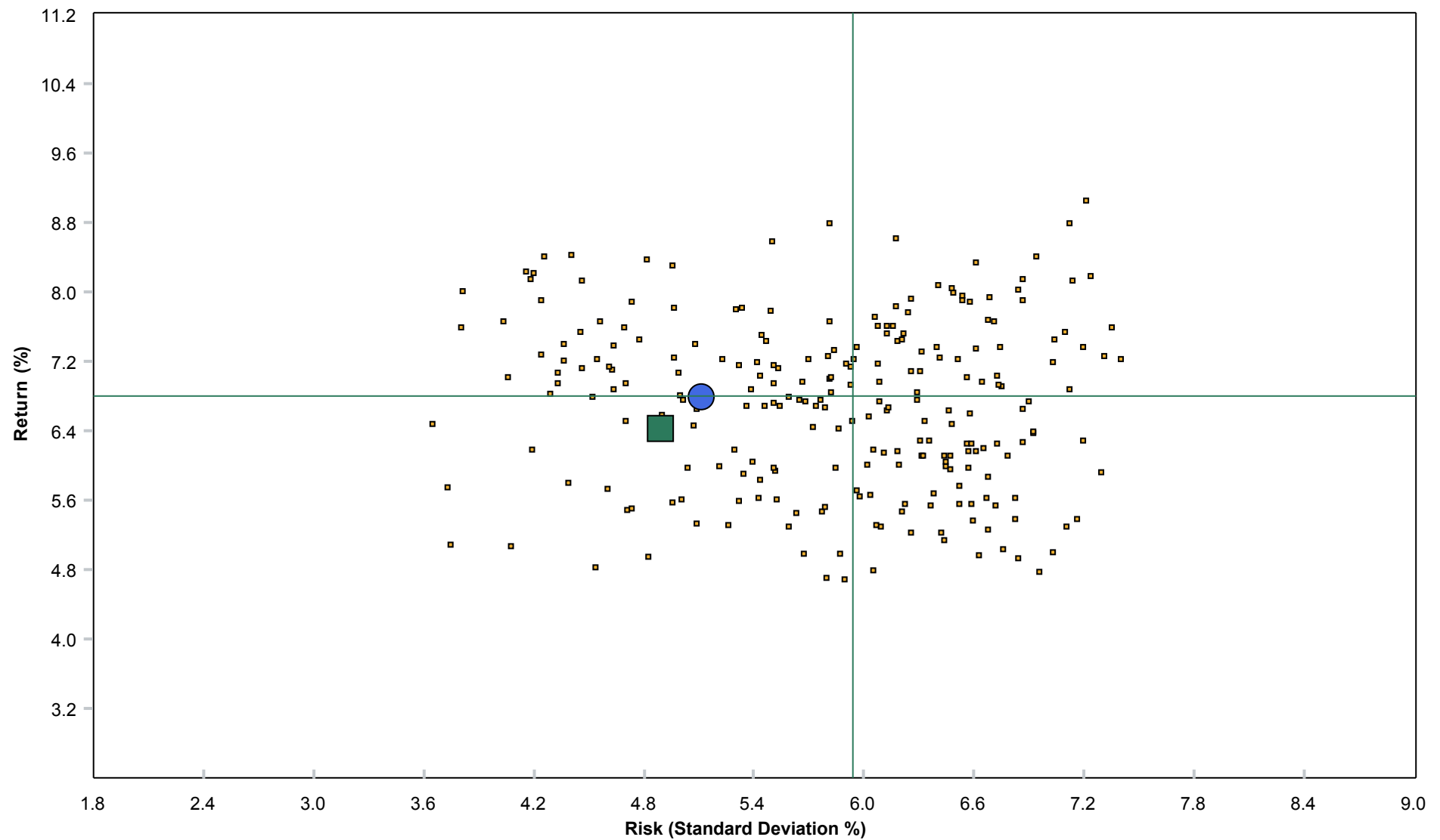
As of September 30, 2018



Parentheses contain percentile rankings.  
Calculation based on monthly periodicity.



Calculation based on monthly periodicity.



Calculation based on monthly periodicity.

## **Private Equity Composite**

## Office of Hawaiian Affairs

## Composite Overview

September 30, 2018

Partnerships	Investment Type	Vintage Year	Investment Strategy	Capital Committed (\$000)	Total Contribution (\$000)	Total Distribution (\$000)	Market Value (\$000)	IRR (%)	TVPI Multiple	DPI Multiple	PIC Multiple	PME+
Pantheon Europe Fund IV LP	Fund Of Funds	2004	International Private Equity	5,172	4,836	5,752	547	4.72	1.30	1.19	0.94	8.14
Pantheon Global Secondary Fund II LP	Secondary	2004	Secondaries	5,000	4,750	5,595	117	4.40	1.20	1.18	0.95	6.14
Pantheon USA Fund VI LP	Fund Of Funds	2004	Hybrid	6,000	5,708	7,520	1,502	7.23	1.58	1.32	0.95	7.69
GS PEP 2004 Offshore	Fund Of Funds	2004	Buyouts	9,900	11,059	14,912	820	6.86	1.42	1.35	1.12	6.97
GS PEP 2005 Offshore	Fund Of Funds	2005	Hybrid	2,000	2,169	2,159	440	3.21	1.20	1.00	1.09	8.82
Pantheon Europe Fund VI LP	Fund Of Funds	2007	International Private Equity	6,481	5,698	5,809	2,890	9.09	1.53	1.02	0.88	14.33
Pantheon USA Fund VIII LP	Fund Of Funds	2007	Other	7,500	6,698	6,746	5,351	12.07	1.81	1.01	0.89	13.78
GS PEP Asia Offshore	Fund Of Funds	2007	Buyouts	1,000	892	1,053	327	9.95	1.55	1.18	0.89	12.89
GS PEP IX Offshore	Fund Of Funds	2007	Buyouts	1,000	1,036	1,289	296	9.16	1.53	1.25	1.04	12.59
GS Mezzanine V	Partnership	2007	Other	8,500	7,768	9,993	163	10.00	1.31	1.29	0.91	7.20
GS PEP X Offshore	Fund Of Funds	2008	Buyouts	3,000	2,916	3,404	1,302	11.73	1.61	1.17	0.97	14.30
GS Vintage V Offshore	Secondary	2008	Secondaries	4,500	3,959	5,666	781	13.18	1.63	1.43	0.88	14.69
Pantheon Global Secondary Fund IV LP	Secondary	2010	Secondaries	5,000	3,320	4,080	1,118	13.84	1.57	1.23	0.66	15.16
Commonfund International Partners VII	Fund Of Funds	2011	Buyouts	3,000	2,568	1,027	2,393	8.28	1.33	0.40	0.86	14.69
Commonfund Natural Resources Partners IX	Fund Of Funds	2011	Energy & Natural Resources	10,000	8,480	1,197	9,698	9.27	1.29	0.14	0.85	14.18
Commonfund Venture Partners X	Fund Of Funds	2012	Venture Capital	5,000	4,525	850	7,022	17.55	1.74	0.19	0.91	13.68
Pantheon Emerging Asia Fund VI LP	Fund Of Funds	2012	International Private Equity	2,000	1,628	40	2,247	11.47	1.41	0.03	0.81	14.56
Pantheon Global Co-Investment Opps II	Co-Investment	2012	International Private Equity	1,000	923	553	1,043	15.78	1.73	0.60	0.92	13.66
Highbridge Offshore Mezzanine Partners II LP	Direct	2012	Mezzanine	5,000	4,705	4,817	2,426	18.44	1.60	1.06	0.91	12.64
Commonfund Private Equity Partners VIII	Fund Of Funds	2012	Buyouts	2,000	1,490	672	1,596	14.94	1.52	0.45	0.75	13.66
GS Vintage VI Offshore	Secondary	2012	Secondaries	5,000	4,320	3,533	2,091	12.33	1.30	0.82	0.86	13.46
GS GEM PEM Off	Fund Of Funds	2012	Buyouts	2,500	2,516	616	2,211	4.21	1.12	0.25	1.01	13.70
Commonfund Emerging Markets Partners 2013	Fund Of Funds	2013	International Private Equity	5,000	3,713	481	4,643	13.57	1.38	0.13	0.74	14.24
Highbridge Irish Specialty Loan Fund III	Direct	2013	Other	3,000	3,650	3,052	1,242	6.37	1.18	0.84	1.22	11.68
Pantheon Global Infrastructure Fund II	Secondary	2013	Infrastructure	2,000	1,554	290	1,743	14.35	1.31	0.19	0.78	15.19
JP Morgan Asian I&R Res Opp Fund II	Other	2013	Infrastructure	930	996	64	581	-11.93	0.64	0.06	1.07	11.85
GS Broad Street Real Estate Credit Partners II GP, L.L.C.	Partnership	2013	Real Estate	3,000	3,344	3,416	404	10.35	1.14	1.02	1.12	10.54
Pantheon Global Secondary Fund V	Secondary	2014	Secondaries	7,000	3,572	833	4,916	26.14	1.61	0.23	0.51	14.22
Commonfund Private Equity Partners IX	Fund Of Funds	2014	Buyouts	2,000	1,260	295	1,386	17.57	1.33	0.23	0.63	15.97
Commonfund International Partners VIII	Fund Of Funds	2014	Buyouts	3,000	1,403	246	1,304	6.29	1.11	0.18	0.47	15.96
Commonfund Natural Resources Partners X	Fund Of Funds	2014	Energy & Natural Resources	9,500	4,845	864	5,660	38.18	1.35	0.18	0.51	17.98
Commonfund Venture Partners XI	Fund Of Funds	2015	Venture Capital	4,750	3,076	167	3,769	17.83	1.28	0.05	0.65	16.03
GS Broad Street Senior Credit Partners	Partnership	2015	Other	2,500	1,983	1,012	1,125	8.40	1.08	0.51	0.79	16.01
Highbridge European Asset Value Offshore	Direct	2016	Other	3,000	2,411	261	2,274	4.94	1.06	0.11	0.80	16.63
GS Vintage VII Offshore	Secondary	2016	Secondaries	4,921	2,518	563	2,489	43.96	1.21	0.22	0.51	18.89
GS Co-Investment Partners II Offshore	Co-Investment	2018	Buyouts	8,000	262	-	262	0.00	1.00	0.00	0.03	0.00
<b>Total Private Equity</b>	<b>Total Fund</b>		<b>Hybrid</b>	<b>159,154</b>	<b>126,548</b>	<b>98,826</b>	<b>78,179</b>	<b>9.38</b>	<b>1.40</b>	<b>0.78</b>	<b>0.79</b>	<b>10.59</b>

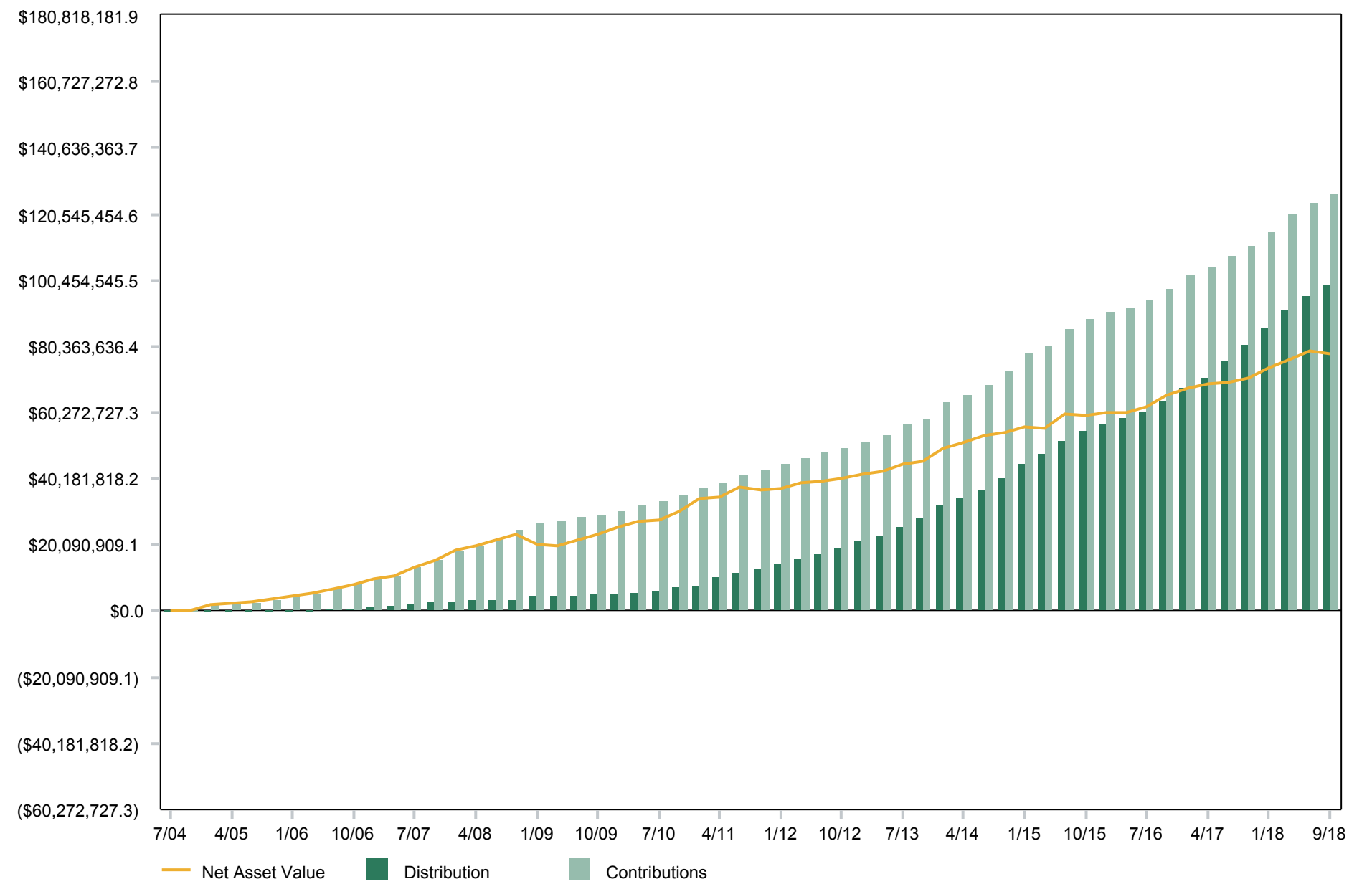
**Cash Flow Summary**

Capital Committed:	\$159,153,673
Total Contributions:	\$126,548,031
Remaining Capital Commitment:	\$37,534,976

Total Distributions:	\$98,826,388
Market Value:	\$78,179,415

Inception Date:	07/20/2004
Inception IRR:	9.38
TVPI:	1.40

Cash Flow Analysis



## **Appendix**



**Total IPS OHA Benchmark**

**3/1/03 to 12/31/08:**

<b>27.8%</b>	<b>U.S. Large Cap Equity</b>	100.0% Russell 1000 Index
<b>11.1%</b>	<b>U.S. Small Cap Equity</b>	100.0% Russell 2000 Index
<b>11.1%</b>	<b>International Equity</b>	100.0% MSCI EAFE (Net)
<b>22.2%</b>	<b>Core Fixed Income</b>	100.0% Barclays U.S. Aggregate
<b>5.6%</b>	<b>High Yield Fixed Income</b>	100.0% Barclays U.S. Corporate High Yield
<b>11.1%</b>	<b>Global Real Estate</b>	25.0% FTSE NAREIT Equity 75.0% NCREIF
<b>11.1%</b>	<b>Absolute Return</b>	100.0% 3-month LIBOR + 4%

**1/1/09 to 8/30/09:**

<b>37.5%</b>	<b>Traditional Global Equities</b>	100.0% MSCI All Country World (Net)
<b>20.5%</b>	<b>Traditional Global Fixed Income</b>	100.0% Barclays U.S. Aggregate
<b>10.0%</b>	<b>Global Real Estate</b>	50.0% FTSE NAREIT Equity 50.0% NCREIF
<b>15.0%</b>	<b>Absolute Return</b>	100.0% 3-month LIBOR + 3%
<b>12.5%</b>	<b>Equity Alternatives</b>	100.0% MSCI All Country World (Net) +3%
<b>2.5%</b>	<b>Fixed Income Alternatives</b>	100.0% Barclays U.S. Corporate High Yield +1%
<b>2.0%</b>	<b>Commodities</b>	100.0% S&P GS Commodities

**9/1/09 to 6/30/10:**

<b>37.5%</b>	<b>Traditional Global Equities</b>	100.0% MSCI All Country World (Net)
<b>20.5%</b>	<b>Traditional Global Fixed Income</b>	100.0% Barclays U.S. Aggregate
<b>5.0%</b>	<b>Global Public Real Estate</b>	100.0% FTSE EPRA/NAREIT Developed
<b>5.0%</b>	<b>Global Private Real Estate</b>	100.0% NCREIF
<b>15.0%</b>	<b>Absolute Return</b>	100.0% 3-month T-Bill + 3%
<b>12.5%</b>	<b>Equity Alternatives</b>	100.0% MSCI All Country World (Net) +3%
<b>2.5%</b>	<b>Fixed Income Alternatives</b>	100.0% Barclays U.S. Corporate High Yield +1%
<b>2.0%</b>	<b>Commodities</b>	100.0% S&P GS Commodities

**7/1/10 to 6/30/11:**

<b>37.5%</b>	<b>Traditional Global Equities</b>	100.0% MSCI All Country World IMI (Net)
<b>20.5%</b>	<b>Traditional Global Fixed Income</b>	100.0% Barclays U.S. Aggregate
<b>5.0%</b>	<b>Global Real Estate</b>	100.0% FTSE EPRA/NAREIT Developed
<b>15.0%</b>	<b>Absolute Return</b>	100.0% 3-month T-Bill + 3%
<b>12.5%</b>	<b>Equity Alternatives</b>	100.0% MSCI All Country World IMI (Net) +3%
<b>2.5%</b>	<b>Fixed Income Alternatives</b>	100.0% Barclays U.S. Corporate High Yield +1%
<b>2.0%</b>	<b>Commodities</b>	100.0% S&P GS Commodities
<b>5.0%</b>	<b>Hawaii Direct Investments</b>	100.0% Barclays U.S. TIPS +4.75%

**7/1/11 to 12/31/12:**

<b>37.5%</b>	<b>Traditional Global Equities</b>	100.0% MSCI All Country World IMI (Net)
<b>20.5%</b>	<b>Traditional Global Fixed Income</b>	80.0% Barclays U.S. Aggregate 10.0% Merrill Lynch HY Master II 10.0% JPM GBI-EM Global Diversified
<b>5.0%</b>	<b>Global Public Real Estate</b>	100.0% FTSE EPRA/NAREIT Developed (Net)
<b>15.0%</b>	<b>Absolute Return</b>	50.0% T-Bills +4% 33.3% MSCI All Country World IMI (Net) 16.7% Merrill Lynch HY Master II
<b>12.5%</b>	<b>Equity Alternatives</b>	100.0% MSCI All Country World IMI (Net) +3%
<b>2.5%</b>	<b>Fixed Income Alternatives</b>	100.0% Merrill Lynch HY Master II + 1%
<b>2.0%</b>	<b>Commodities</b>	100.0% Bloomberg Commodity Index Total Return
<b>5.0%</b>	<b>Hawaii Direct Investments</b>	25.0% Barclays U.S. TIPS 20.0% DJ U.S. Select REIT TR 35.0% S&P Global Lrg MidCap Common Resources (Net) 20.0% DJ UBS Commodity TR

**1/1/13 to 6/30/14:**

<b>38.5%</b>	<b>Traditional Global Equities</b>	100.0% MSCI All Country World IMI (Net)
<b>11.0%</b>	<b>Traditional Global Credit</b>	65.0% Barclays U.S. Credit Bond 15.0% JPM GBI-EM Global Diversified 15.0% Barclays U.S. High Yield – 2% Issuer Cap 5.0% JPM EMBI Global
<b>5.5%</b>	<b>Traditional Global Real Assets</b>	100.0% FTSE EPRA/NAREIT Developed (Net)
<b>8.0%</b>	<b>Enhanced Liquidity</b>	n/a DJ UBS Commodity TR (Actual Weight) n/a Barclays U.S. Gov't (Actual Weight)
<b>5.0%</b>	<b>Hawaii Direct Investments</b>	25.0% Barclays U.S. TIPS 20.0% DJ U.S. Select REIT TR 35.0% S&P Global Lrg MidCap Common Resources (Net) 20.0% DJ UBS Commodity TR
<b>12.8%</b>	<b>Low Volatility Marketable Alternatives</b>	80.0% T-Bills +4% 20.0% DJ UBS Commodity TR
<b>12.8%</b>	<b>N.M. Equity</b>	100.0% MSCI All Country World IMI +3% (Qtr Lag)
<b>2.4%</b>	<b>N.M. Credit</b>	100.0% Merrill Lynch HY Master II + 1.5% (Qtr Lag)
<b>4.0%</b>	<b>N.M. Opportunistic &amp; Real Assets</b>	25.0% Barclays U.S. TIPS 20.0% DJ U.S. Select REIT TR 35.0% S&P Global Lrg MidCap Common Resources (Net) 20.0% DJ UBS Commodity TR (Qtr Lag +3% per annum)

**7/1/14 to 10/31/2015:**

<b>38.5%</b>	<b>Traditional Global Equities</b>	100.0% MSCI All Country World IMI (Net)
<b>11.0%</b>	<b>Traditional Global Credit</b>	65.0% Barclays U.S. Credit Bond 15.0% JPM GBI-EM Global Diversified 15.0% Barclays U.S. High Yield – 2% Issuer Cap 5.0% JPM EMBI Global
<b>5.5%</b>	<b>Traditional Global Real Assets</b>	100.0% FTSE EPRA/NAREIT Developed (Net)
<b>8.0%</b>	<b>Enhanced Liquidity</b>	n/a Citigroup 3 Month T-Bill + 4% (Actual Weight) n/a Barclays U.S. Gov't (Actual Weight)
<b>5.0%</b>	<b>Hawaii Direct Investments</b>	25.0% Barclays U.S. TIPS 20.0% DJ U.S. Select REIT TR 35.0% S&P Global Lrg MidCap Common Resources (Net) 20.0% DJ UBS Commodity TR
<b>12.8%</b>	<b>Low Volatility Marketable Alternatives</b>	80.0% OHA Citigroup 3 Month T Bill + 4% 20.0% Bloomberg Commodity Index Total Return
<b>12.8%</b>	<b>N.M. Equity</b>	100.0% MSCI All Country World IMI +3%
<b>2.4%</b>	<b>N.M. Credit</b>	100.0% Merrill Lynch HY Master II + 1.5%
<b>4.0%</b>	<b>N.M. Opportunistic &amp; Real Assets</b>	25.0% Barclays U.S. TIPS 20.0% DJ U.S. Select REIT TR 35.0% S&P Global Lrg MidCap Common Resources (Net) 20.0% DJ UBS Commodity TR (Qtr Lag +3% per annum)

**11/1/15 to 10/31/17:**

<b>38.5%</b>	<b>Traditional Global Equities</b>	100.0% MSCI All Country World IMI (Net)
<b>11.0%</b>	<b>Traditional Global Credit</b>	65.0% Barclays U.S. Credit Bond 15.0% JPM GBI-EM Global Diversified 15.0% Barclays U.S. High Yield – 2% Issuer Cap 5.0% JPM EMBI Global
<b>5.5%</b>	<b>Traditional Global Real Assets</b>	100.0% FTSE EPRA/NAREIT Developed (Net)
<b>8.0%</b>	<b>Enhanced Liquidity</b>	n/a Citigroup 3 Month T-Bill + 4% (Actual Weight)
<b>5.0%</b>	<b>Hawaii Direct Investments</b>	100.0% SSgA Real Asset Strategy
<b>12.8%</b>	<b>Low Volatility Marketable Alternatives</b>	100.0% Citigroup 3 Month T-Bill
<b>12.8%</b>	<b>N.M. Equity</b>	100.0% MSCI All Country World IMI +4%
<b>2.4%</b>	<b>N.M. Credit</b>	100.0% Merrill Lynch HY Master II + 1.5%
<b>4.0%</b>	<b>N.M. Opportunistic &amp; Real Assets</b>	25.0% Barclays U.S. TIPS 20.0% DJ U.S. Select REIT TR 35.0% S&P Global Lrg MidCap Common Resources (Net) 20.0% DJ Brookfield Glb Infra (Qtr Lag +3% per annum)

**11/1/17 to Present:**

<b>40.0%</b>	<b>Traditional Global Equities</b>	100.0% MSCI All Country World
<b>17.0%</b>	<b>Traditional Global Credit</b>	100.0% Bloomberg Barclays U.S. Aggregate
<b>5.0%</b>	<b>Traditional Global Real Assets</b>	100.0% Bloomberg Barclays U.S. TIPS +3%
<b>12.0%</b>	<b>Hedge Funds</b>	100.0% Citigroup 3 Month T-Bill +4%
<b>18.0%</b>	<b>Private Equity</b>	100.0% MSCI All Country World +3%
<b>3.0%</b>	<b>Enhanced Liquidity</b>	100.0% Bloomberg Barclays 1-3 Year Treasury
<b>5.0%</b>	<b>Hawaii Direct Investments</b>	100.0% Bloomberg Barclays U.S. TIPS +3%

**Total IPS Traditional Assets Benchmark**

**1/1/11 to 6/30/11:**

<b>59.5%</b>	<b>Traditional Global Equities</b>	100.0% MSCI All Country World IMI (Net)
<b>32.5%</b>	<b>Traditional Global Fixed Income</b>	100.0% Bloomberg Barclays U.S. Aggregate
<b>8.0%</b>	<b>Traditional Global Real Assets</b>	100.0% FTSE EPRA/NAREIT Developed

**7/1/11 to 12/31/2012:**

<b>59.5%</b>	<b>Traditional Global Equities</b>	100.0% MSCI All Country World IMI (Net)
<b>32.5%</b>	<b>Traditional Global Fixed Income</b>	80.0% Barclays U.S. Aggregate 10.0% Merrill Lynch HY Master II 10.0% JPM GBI-EM Global Diversified
<b>8.0%</b>	<b>Global Public Real Estate</b>	100.0% FTSE EPRA/NAREIT Developed (Net)

**1/1/13 to 10/31/17:**

<b>70.0%</b>	<b>Traditional Global Equities</b>	100.0% MSCI All Country World IMI (Net)
<b>20.0%</b>	<b>Traditional Global Fixed Income</b>	65.0% Barclays U.S. Credit Bond 15.0% JPM GBI-EM Global Diversified 15.0% Barclays U.S. High Yield – 2% Issuer Cap 5.0% JPM EMBI Global
<b>10.0%</b>	<b>Global Public Real Estate</b>	100.0% FTSE EPRA/NAREIT Developed (Net)

**11/1/17 to Present:**

<b>64.5%</b>	<b>Traditional Global Equities</b>	100.0% MSCI All Country World
<b>27.4%</b>	<b>Traditional Global Credit</b>	100.0% Bloomberg Barclays U.S. Aggregate
<b>8.1%</b>	<b>Traditional Global Real Assets</b>	100.0% Bloomberg Barclays U.S. TIPS +3%

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# Office of Hawaiian Affairs

**Sonya K. Park**

January 23, 2019

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## **Appendices**

Appendix A: Important Disclosures

Appendix B: Biography

All the information contained in this presentation is as of date Indicated unless otherwise noted.

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# Account Summary

# Office of Hawaiian Affairs — Account Summary

## Investment Summary

As of September 30, 2018

	Market Value (\$)
State Street Real Asset NL Strategy	19,707,816
State Street Real Asset NL CTF	2,295,161
State Street 1–3 Year US Treasury Index NL Strategy	7,031,733
State Street 1–3 Year US Credit Index NL Strategy	3,414,048
<b>Total</b>	<b>32,448,757</b>

## Statement of Asset Changes

The following changes took place in the Office of Hawaiian Affairs account for the period of: July 01, 2018 to September 30, 2018

	Starting Balance 07/01/2018 (\$)	Contributions (\$)	Withdrawals (\$)	Appreciation/ (Depreciation)* (\$)	Ending Balance 09/30/2018 (\$)
State Street Real Asset NL Strategy	19,832,002	—	—	(124,186)	19,707,816
State Street Real Asset NL CTF	2,309,623	—	—	(14,462)	2,295,161
State Street 1–3 Year US Treasury Index NL Strategy	7,018,054	—	—	13,679	7,031,733
State Street 1–3 Year US Credit Index NL Strategy	10,362,693	—	(7,000,000)	51,355	3,414,048
<b>Total</b>	<b>39,522,372</b>	<b>—</b>	<b>(7,000,000)</b>	<b>(73,615)</b>	<b>32,448,757</b>

Source: SSGA

\* Includes dividends, interest, and realized/unrealized gains and losses.



# Office of Hawaiian Affairs — Account Summary

## Summary of Performance

Following are the gross and net returns for the Office of Hawaiian Affairs portfolios versus the corresponding benchmarks as of September 30, 2018:

	1 Month (%)	3 Months (%)	Year to Date (%)	1 Year (%)	3 Years (%)	5 Years (%)	Since Inception (%)	Inception Date
<b>State Street Real Asset NL Strategy</b>								<b>May/2013</b>
Total Returns [Gross]	0.46	-0.63	0.07	3.83	6.87	1.25	0.20	
Real Assets Custom Blended Index	0.50	-0.60	0.12	3.90	6.92	1.23	0.19	
<b>Difference</b>	<b>-0.05</b>	<b>-0.02</b>	<b>-0.05</b>	<b>-0.07</b>	<b>-0.05</b>	<b>0.02</b>	<b>0.01</b>	
Total Returns [Net]	0.44	-0.68	-0.10	3.59	6.62	1.02	-0.03	
Real Assets Custom Blended Index	0.50	-0.60	0.12	3.90	6.92	1.23	0.19	
<b>Difference</b>	<b>-0.06</b>	<b>-0.07</b>	<b>-0.23</b>	<b>-0.31</b>	<b>-0.30</b>	<b>-0.22</b>	<b>-0.22</b>	
<b>State Street Real Asset NL CTF</b>								<b>Nov/2016</b>
Total Returns [Gross]	0.46	-0.63	0.07	3.83	N/A	N/A	6.32	
Real Assets Custom Blended Index	0.50	-0.60	0.12	3.90	N/A	N/A	6.30	
<b>Difference</b>	<b>-0.05</b>	<b>-0.02</b>	<b>-0.05</b>	<b>-0.07</b>	<b>N/A</b>	<b>N/A</b>	<b>0.02</b>	
Total Returns [Net]	0.42	-0.74	-0.21	3.42	N/A	N/A	5.94	
Real Assets Custom Blended Index	0.50	-0.60	0.12	3.90	N/A	N/A	6.30	
<b>Difference</b>	<b>-0.09</b>	<b>-0.13</b>	<b>-0.33</b>	<b>-0.48</b>	<b>N/A</b>	<b>N/A</b>	<b>-0.36</b>	

Past performance is not a guarantee of future results. Performance returns for periods of less than one year are not annualized. The performance figures contained herein are provided on a gross and net of fees basis. Gross of fees do not reflect and net of fees do reflect the deduction of advisory or other fees which could reduce the return. The performance includes the reinvestment of dividends and other corporate earnings and is calculated in US dollars.

# Office of Hawaiian Affairs — Account Summary

## Summary of Performance

Following are the gross and net returns for the Office of Hawaiian Affairs portfolios versus the corresponding benchmarks as of September 30, 2018

	1 Month (%)	3 Months (%)	Year to Date (%)	1 Year (%)	3 Years (%)	5 Years (%)	Since Inception (%)	Inception Date
<b>State Street 1–3 Year US Treasury Index</b>								<b>Jan/2018</b>
<b>NL Strategy</b>								
Total Returns [Net]	-0.13	0.19	N/A	N/A	N/A	N/A	0.46	
Bloomberg Barclays U.S. 1–3 Year Treasury Bond Index	-0.12	0.19	N/A	N/A	N/A	N/A	0.46	
<b>Difference</b>	<b>-0.01</b>	<b>0.00</b>	N/A	N/A	N/A	N/A	<b>0.00</b>	
<b>State Street 1–3 Year US Credit Index</b>								<b>Feb/2017</b>
<b>NL Strategy</b>								
Total Returns [Gross]	0.04	0.63	0.75	0.65	N/A	N/A	1.22	
Bloomberg Barclays U.S. 1–3 Year Credit Bond Index	0.03	0.62	0.73	0.66	N/A	N/A	1.23	
<b>Difference</b>	<b>0.01</b>	<b>0.00</b>	<b>0.02</b>	<b>-0.01</b>	N/A	N/A	<b>-0.01</b>	
Total Returns [Net]	0.02	0.58	0.65	0.53	N/A	N/A	1.11	
Bloomberg Barclays U.S. 1–3 Year Credit Bond Index	0.03	0.62	0.73	0.66	N/A	N/A	1.23	
<b>Difference</b>	<b>-0.01</b>	<b>-0.04</b>	<b>-0.09</b>	<b>-0.13</b>	N/A	N/A	<b>-0.12</b>	

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# Office of Hawaiian Affairs — Account Summary

## Investment Summary

As of September 30, 2018

	Market Value (\$)
State Street Aggregate Bond Index K	32,115,334
State Street Global Equity EX US K	22,931,137
State Street Equity 500 Index Fund K	35,822,524
<b>Total</b>	<b>90,868,995</b>

## Statement of Asset Changes

The following changes took place in the Office of Hawaiian Affairs account for the period of July 01, 2018 to September 30, 2018:

	Starting Balance 07/01/2018 (\$)	Contributions (\$)	Withdrawals (\$)	Appreciation/ (Depreciation)* (\$)	Ending Balance 09/30/2018 (\$)
State Street Aggregate Bond Index K	32,128,364	222,994	—	(236,024)	32,115,334
State Street Global Equity EX US K	22,754,234	—	—	176,904	22,931,137
State Street Equity 500 Index Fund K	33,274,478	—	—	2,548,046	35,822,524
<b>Total</b>	<b>88,157,076</b>	<b>222,994</b>	<b>—</b>	<b>2,488,925</b>	<b>90,868,995</b>

Source: SSGA

\* Includes dividends, interest, and realized/unrealized gains and losses.

# Office of Hawaiian Affairs — Account Summary

## Summary of Performance

Following are net returns for the Office of Hawaiian Affairs portfolios versus the corresponding benchmarks as of September 30, 2018:

	3 Months (%)	Year to Date (%)	1 Year (%)	3 Years (%)	5 Years (%)	10 Years (%)	Since Inception (%)	Inception Date
<b>State Street Aggregate Bond Index K</b>								<b>Sep/2014</b>
Total Returns [Net]	-0.04	-1.71	-1.43	1.09	N/A	N/A	1.56	
Bloomberg Barclays Aggregate Bond	0.02	-1.60	-1.22	1.31	N/A	N/A	1.77	
<b>Difference</b>	<b>-0.06</b>	<b>-0.11</b>	<b>-0.21</b>	<b>-0.22</b>	<b>NA</b>	<b>NA</b>	<b>-0.21</b>	
<b>State Street Global Equity EX US K</b>								<b>Sep/2014</b>
Total Returns [Net]	0.78	-2.90	1.86	9.87	N/A	N/A	2.95	
MSCI ACWI ex USA Index	0.71	-3.09	1.76	9.97	N/A	N/A	3.06	
<b>Difference</b>	<b>0.07</b>	<b>0.19</b>	<b>0.10</b>	<b>-0.10</b>	<b>NA</b>	<b>NA</b>	<b>-0.11</b>	
<b>State Street Equity 500 Index Fund K</b>								<b>Apr/2001</b>
Total Returns [Net]	7.66	10.55	17.79	17.25	13.79	11.82	N/A	
S&P 500 Index	7.71	10.56	17.91	17.31	13.95	11.97	N/A	
<b>Difference</b>	<b>-0.05</b>	<b>-0.01</b>	<b>-0.12</b>	<b>-0.06</b>	<b>-0.16</b>	<b>-0.15</b>	<b>NA</b>	

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# Office of Hawaiian Affairs — Account Summary

## Investment Summary

As of December 31, 2018

	Market Value (\$)
State Street Real Asset NL Strategy	17,306,866
State Street Real Asset NL CTF	2,131,678
State Street 1–3 Year US Treasury Index NL Strategy	7,117,340
State Street 1–3 Year US Credit Index NL Strategy	11,583,159
<b>Total</b>	<b>38,139,043</b>

## Statement of Asset Changes

The following changes took place in the Office of Hawaiian Affairs account for the period of October 01, 2018 to December 31, 2018:

	Starting Balance 10/01/2018 (\$)	Contributions (\$)	Withdrawals (\$)	Appreciation/ (Depreciation)* (\$)	Ending Balance 12/31/2018 (\$)
State Street Real Asset NL Strategy	19,707,816	—	(1,042,061)	(1,358,889)	17,306,866
State Street Real Asset NL CTF	2,295,161	—	—	(163,483)	2,131,678
State Street 1–3 Year US Treasury Index NL Strategy	7,031,733	—	(6,836)	92,443	7,117,340
State Street 1–3 Year US Credit Index NL Strategy	3,414,048	8,100,000	(35,487)	104,598	11,583,159
<b>Total</b>	<b>32,448,757</b>	<b>8,100,000</b>	<b>(1,084,384)</b>	<b>(1,325,330)</b>	<b>38,139,043</b>

Source: SSGA

\* Includes dividends, interest, and realized/unrealized gains and losses.

# Office of Hawaiian Affairs — Account Summary

## Summary of Performance

Following are the gross and net returns for the Office of Hawaiian Affairs portfolios versus the corresponding benchmarks as of December 31, 2018:

	1 Month (%)	3 Months (%)	Year to Date (%)	1 Year (%)	3 Years (%)	5 Years (%)	Since Inception (%)	Inception Date
<b>State Street Real Asset NL Strategy</b>								<b>May/2013</b>
Total Returns [Gross]	-3.74	-7.12	-7.06	-7.06	4.91	-0.33	-1.12	
Real Assets Custom Blended Index	-3.73	-7.16	-7.04	-7.04	4.97	-0.36	-1.13	
<b>Difference</b>	<b>-0.01</b>	<b>0.03</b>	<b>-0.01</b>	<b>-0.01</b>	<b>-0.06</b>	<b>0.03</b>	<b>0.01</b>	
Total Returns [Net]	-3.75	-7.18	-7.28	-7.28	4.67	-0.56	-1.35	
Real Assets Custom Blended Index	-3.73	-7.16	-7.04	-7.04	4.97	-0.36	-1.13	
<b>Difference</b>	<b>-0.02</b>	<b>-0.02</b>	<b>-0.23</b>	<b>-0.23</b>	<b>-0.30</b>	<b>-0.20</b>	<b>-0.22</b>	
<b>State Street Real Asset NL CTF</b>								<b>Nov/2016</b>
Total Returns [Gross]	-3.74	-7.12	-7.06	-7.06	N/A	N/A	2.00	
Real Assets Custom Blended Index	-3.73	-7.16	-7.04	-7.04	N/A	N/A	1.97	
<b>Difference</b>	<b>-0.01</b>	<b>0.03</b>	<b>-0.01</b>	<b>-0.01</b>	N/A	N/A	<b>0.03</b>	
Total Returns [Net]	-3.77	-7.23	-7.42	-7.42	N/A	N/A	1.63	
Real Assets Custom Blended Index	-3.73	-7.16	-7.04	-7.04	N/A	N/A	1.97	
<b>Difference</b>	<b>-0.04</b>	<b>-0.07</b>	<b>-0.38</b>	<b>-0.38</b>	N/A	N/A	<b>-0.34</b>	

Past performance is not a guarantee of future results. Performance returns for periods of less than one year are not annualized. The performance figures contained herein are provided on a gross and net of fees basis. Gross of fees do not reflect and net of fees do reflect the deduction of advisory or other fees which could reduce the return. The performance includes the reinvestment of dividends and other corporate earnings and is calculated in US dollars.

# Office of Hawaiian Affairs — Account Summary

## Summary of Performance

Following are the gross net returns for the Office of Hawaiian Affairs portfolios versus the corresponding benchmarks as of December 31, 2018

	1 Month (%)	3 Months (%)	Year to Date (%)	1 Year (%)	3 Years (%)	5 Years (%)	Since Inception (%)	Inception Date
<b>State Street 1–3 Year US Treasury Index</b>								<b>Jan/2018</b>
<b>NL Strategy</b>								
Total Returns [Net]	0.80	1.32	N/A	N/A	N/A	N/A	1.78	
Bloomberg Barclays U.S. 1–3 Year Treasury Bond Index	0.81	1.31	N/A	N/A	N/A	N/A	1.78	
<b>Difference</b>	<b>0.00</b>	<b>0.00</b>	N/A	N/A	N/A	N/A	<b>0.00</b>	
<b>State Street 1–3 Year US Credit Index</b>								<b>Feb/2017</b>
<b>NL Strategy</b>								
Total Returns [Gross]	0.74	0.92	1.68	1.68	N/A	N/A	1.55	
Bloomberg Barclays U.S. 1–3 Year Credit Bond Index	0.72	0.89	1.64	1.64	N/A	N/A	1.54	
<b>Difference</b>	<b>0.01</b>	<b>0.03</b>	<b>0.05</b>	<b>0.05</b>	N/A	N/A	<b>0.00</b>	
Total Returns [Net]	0.73	0.88	1.54	1.54	N/A	N/A	1.44	
Bloomberg Barclays U.S. 1 3 Year Credit Bond Index	0.72	0.89	1.64	1.64	N/A	N/A	1.54	
<b>Difference</b>	<b>0.01</b>	<b>-0.01</b>	<b>-0.10</b>	<b>-0.10</b>	N/A	N/A	<b>-0.11</b>	

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# Office of Hawaiian Affairs — Account Summary

## Investment Summary

As of December 31, 2018

	Market Value (\$)
State Street Aggregate Bond Index K	29,469,244
State Street Global Equity EX US K	24,104,134
State Street Equity 500 Index Fund K	28,216,189
<b>Total</b>	<b>81,789,567</b>

## Statement of Asset Changes

The following changes took place in the Office of Hawaiian Affairs account for the period of October 01, 2018 to December 31, 2018:

	Starting Balance 10/01/2018 (\$)	Contributions (\$)	Withdrawals (\$)	Appreciation/ (Depreciation)* (\$)	Ending Balance 12/31/2018 (\$)
State Street Aggregate Bond Index K	32,115,334	296,867	3,100,000	157,043	29,469,244
State Street Global Equity EX US K	22,931,137	5,849,576	—	(4,676,580)	24,104,134
State Street Equity 500 Index Fund K	35,822,524	1,388,185	3,000,000	(5,994,519)	28,216,189
<b>Total</b>	<b>90,868,995</b>	<b>7,534,628</b>	<b>6,100,000</b>	<b>(10,514,056)</b>	<b>81,789,567</b>

Source: SSGA

\* Includes dividends, interest, and realized/unrealized gains and losses.



# Office of Hawaiian Affairs — Account Summary

## Summary of Performance

Following are net returns for the Office of Hawaiian Affairs portfolios versus the corresponding benchmarks as of December 31, 2018:

	3 Months (%)	Year to Date (%)	1 Year (%)	3 Years (%)	5 Years (%)	10 Years (%)	Since Inception (%)	Inception Date
<b>State Street Aggregate Bond Index K</b>								<b>Sep/2014</b>
Total Returns [Net]	1.64	-0.10	-0.10	1.81	N/A	N/A	1.86	
Bloomberg Barclays Aggregate Bond	1.64	0.01	0.01	2.06	N/A	N/A	2..05	
<b>Difference</b>	<b>0.00</b>	<b>-0.11</b>	<b>-0.11</b>	<b>-0.25</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	
<b>State Street Global Equity EX US K</b>								<b>Sep/2014</b>
Total Returns [Net]	-11.46	-14.03	-14.03	4.69	N/A	N/A	-0.10	
MSCI ACWI ex USA Index	-11.46	-14.20	-14.20	4.48	N/A	N/A	0.00	
<b>Difference</b>	<b>0.00</b>	<b>0.17</b>	<b>0.17</b>	<b>0.21</b>	<b>NA</b>	<b>NA</b>	<b>-0.10</b>	
<b>State Street Equity 500 Index Fund K</b>								<b>Apr/2001</b>
Total Returns [Net]	-13.54	-4.42	-4.42	9.16	8.35	12.91	6.19	
S&P 500 Index	-13.52	-4.38	-4.38	9.26	8.49	13.12	6.16	
<b>Difference</b>	<b>-0.02</b>	<b>-0.04</b>	<b>-0.04</b>	<b>-0.10</b>	<b>-0.14</b>	<b>-0.21</b>	<b>0.03</b>	

Past performance is not a guarantee of future results. Performance returns for periods of less than one year are not annualized. The performance figures contained herein are provided on a gross and net of fees basis. Gross of fees do not reflect and net of fees do reflect the deduction of advisory or other fees which could reduce the return. The performance includes the reinvestment of dividends and other corporate earnings and is calculated in US dollars.

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# Equity Indexing Skillfully Delivered

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# Who We Are

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# Why State Street Global Advisors for Index, Smart Beta & ESG Investing

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## Core Focus Area and Key Strength

- 40 year history of delivering high quality, broad based index solutions
- Index represents 80%<sup>1</sup> of assets under management and 68%<sup>1</sup> of revenues
- >98%<sup>1</sup> of equity index funds have historically tracked within their tolerance bands

---

## Industry Leader and Innovator

- 
- ✓ Launched first US ETF
- 
- ✓ In-house index creation
- 
- ✓ Developing smart beta since 2006
- 

Groundbreaking efforts in ESG research and integrated portfolio solutions In-house proprietary ESG framework and screening tool

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## Experienced and Reliable Team

- 20 years average portfolio manager tenure
- Utilize a globally consistent investment management platform and processes
- Strategic focus on implementation and risk management
- Deep Research expertise with innovative heritage

<sup>1</sup> Source: State Street Global Advisors, June 2018.

# Investment Philosophy

We aim to deliver to each client the returns and characteristics of a targeted index or strategy

## We believe in...

### Integration of technology & human insight

- Maintain a primary portfolio manager structure while using a state of the art portfolio management platform
- Continuous investment in our technology infrastructure to gain further efficiencies

### Supporting long-term shareholder values

- Engage with investee companies to promote responsible investing and protect long term shareholder returns through asset stewardship
- Firm wide proxy voting platform

### Innovating through research

- Value add strategies based on core beta research
- Development of propriety strategies and indexes
- ESG screening tools & framework, thematic strategies and portfolio integration

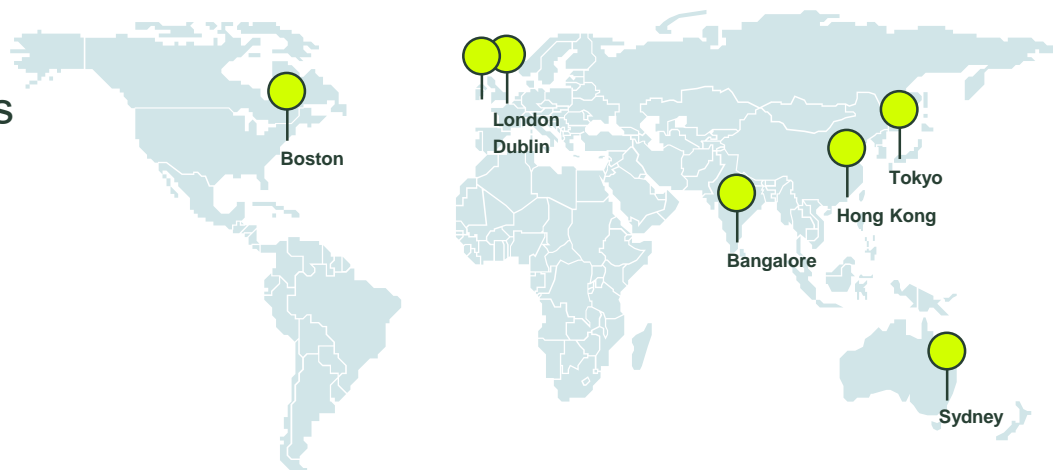
Source: State Street Global Advisors

# State Street Global Equity Beta Solutions

**150+<sup>1</sup>** Dedicated professionals to equity indexing across the firm

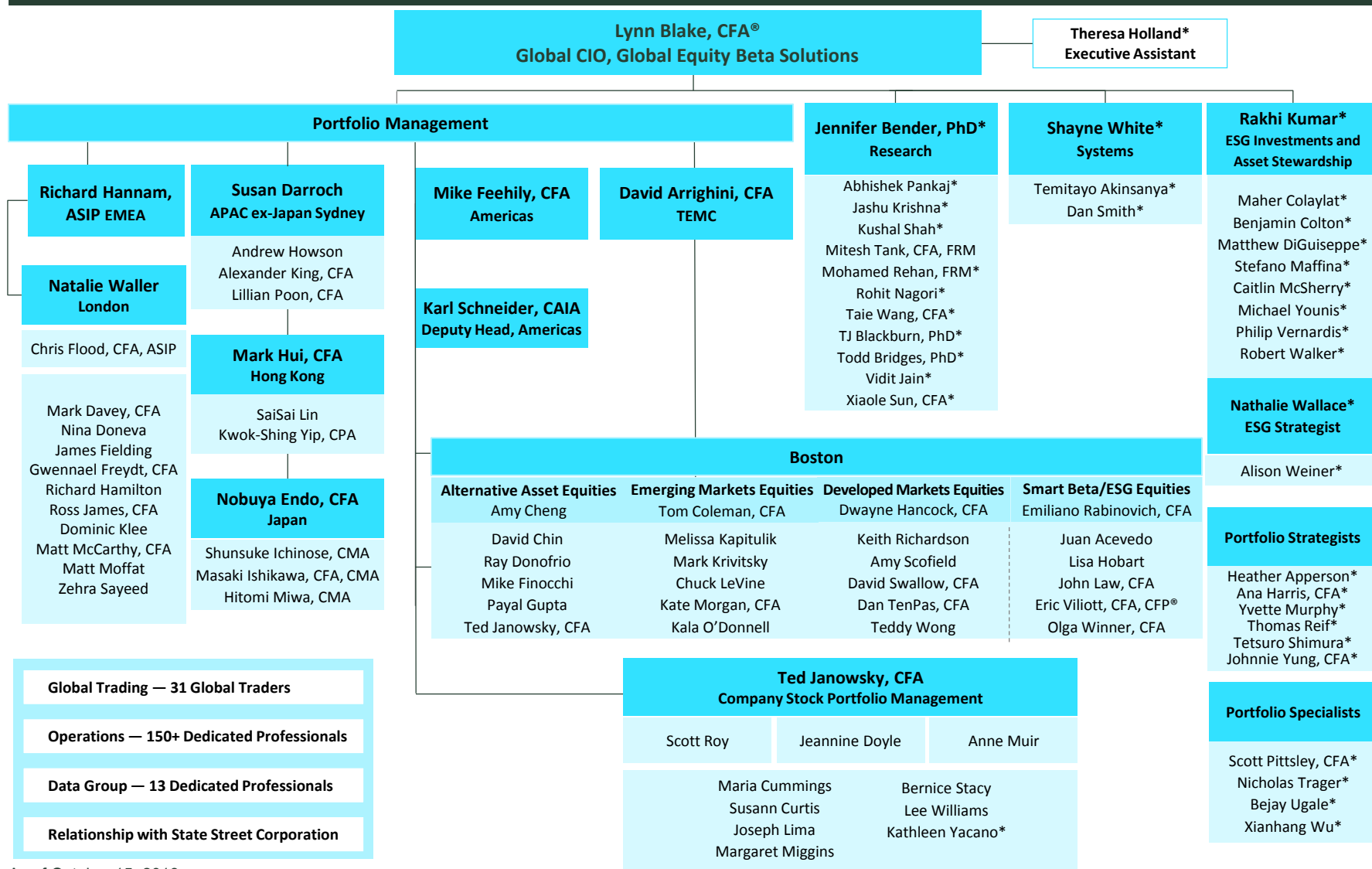
**30+** Traders & analysts

**10+** Equity strategists & specialists



CIO		Senior Leadership		Portfolio Strategists	
	Exp Yrs		Exp Yrs		Exp Yrs
Lynn Blake, CFA	31	Mike Feehily, CFA (US)	26	Heather Apperson	14
		Richard Hannam, ASIP (EMEA)	34	Ana Harris, CFA	14
		Susan Darroch, (Asia Pac)	33	Yvette Murphy	10
		David Arrighini, CFA (TEMC)	28	Thomas Reif	24
		Jennifer Bender, PhD <sup>3</sup> (Research)	22	Tetsuro Shimura	32
		Rakhi Kumar, (ESG/ Stewardship)	17	Johnnie Yung, CFA	32
		Shayne White (Technology)	26		
Team Highlights					
Investment Team Members <sup>2</sup>	62				
Average Experience Years	20				
Number of CFA Charter Holders	27				
Number of PhDs	3				

As of October 15, 2018. <sup>1</sup> Includes Global Equity Beta Solutions Team Members who may not be reflected in the organization chart above. <sup>2</sup> Investment Team members include portfolio managers and researchers. <sup>3</sup> Does not manage assets for the Global Equity Beta Solutions team. CFA® is a trademark of the CFA Institute. CAIA® is a registered trademark of the Chartered Alternative Investment Analyst Association.



As of October 15, 2018

\* Does not manage assets for the Global Equity Beta Solutions team. CFA® is a trademark owned by CFA Institute. Certified Financial Planner Board of Standards Inc. owns the certification marks CFP®, CERTIFIED FINANCIAL PLANNER™ and federally registered CFP (with flame design) in the US, which it awards to individuals who successfully complete CFP Board's initial and ongoing certification requirements.

# ESG & Asset Stewardship

## Head of ESG & Asset Stewardship

Rakhi Kumar



## Our Belief

Companies embracing ESG best practice have strong, effective, independent boards and are able to incorporate sustainability into their long term strategy.

## ESG

- **Proprietary** ESG research and innovation driving multi asset classes solutions
- **Strong focus** on independent board leadership, financial impacts of climate change and other crucial ESG issues like gender diversity

## Asset Stewardship

- **Alignment** of asset stewardship, portfolio management, research, technology and ESG solutions
- Commissioned the **Fearless Girl** statue and developed the **Gender Diversity Index**

## 30+ Years

of commitment to ESG investors

## \$202B<sup>1</sup>

assets under management in ESG

## 301<sup>2</sup> of the 700

companies we called on made positive progress on board gender diversity



Photo:  
Sculpture by Kristen Visbal.

Source: State Street Global Advisors. <sup>1</sup> Data as of June 30, 2018 and listed in USD.

<sup>2</sup> 152 added a female board member, and 34 pledged to do so.



# Robust Research Guides Investment Decisions & Strategy Design

## Global Head of Research

Jennifer Bender,\* PhD



## Global Team

Global Headcount **11**

Members with PhD **3**

Peer-reviewed articles & chapters authored **17**



## Core Beta

Adding incremental value through risk-aware implementation and cost-reduction strategies, and strategic execution of index changes

## Smart Beta

Blending empirical and theoretical research, and balancing intuition and complexity make us a leader in factor definition, combination, and implementation

## Thematic & ESG

Identifying and capturing ESG-driven risks and opportunities and optimal portfolio construction across a spectrum of ESG exposures

## Self-Indexed & Proprietary Beta

Developing innovative solutions while incorporating implementation insights into our range of cap-weighted, factor, and ESG indexes

As of September 30, 2018. \* Does not manage assets for the Global Equity Beta Solutions team.

# Global Trading

**17 year** global desk in place

**24 hour** trading capabilities

**30+** Traders (Equity & Fixed Income)

**+18 year's** average experience

**\$2.3 Trillion** dollars traded in 2017

**2.9 Million** tickets executed in 2017



## What Differentiates Us from the Competition?

### Spectrum of Trading Tools

- **Internal crossing network:** Use of security & unit level crossing when possible to minimize transactions costs
- **Algo Wheel:** Seeks to reward better performing algorithmic trading strategies and remove trader bias through a performance driven broker selection process

### Trading Analytics Group (TCA)

- Cross asset class team performing transaction cost analysis, data and analytics reporting, as well as market research
- TCA results incorporated into Algo selection process
- Quarterly review of best execution and governance oversight framework

### Connectivity & Expertise

- Regional trading desks with local expertise — coverage across 95 global markets
- Strong partnership between trading, portfolio management and research helps drive value-add strategies and routine implementation decisions

As of December 31, 2017. Asset classes include equity, fixed income, futures and currency. Figures are in USD.

# Industry Trends Q3 2018

<b>Flows/Markets</b>	<p><b>Investors continued to de-risk, although US equity markets hit new highs and rates edged higher.</b></p> <ul style="list-style-type: none"> <li>Concerns over slowing growth, global trade and rising rates drove investor sentiment. Non-US equities, specifically EM continued to see outflows.</li> <li>Recent investor surveys showing the largest overweight in US equities in three years and don't expect a rotation in bonds until US 10 yr yields hit 3.7%<sup>1</sup></li> </ul>	
<b>Smart Beta / Factor Investing</b>	<p><b>Focus area for institutions but implementation and manager solutions vary</b></p> <ul style="list-style-type: none"> <li>30% YoY growth rate in smart beta strategies since 2012, while 'standard' passive strategies grew 13% a year during the same period<sup>2</sup></li> <li>Thoughtful implementation coupled with the ability to clearly capture and attribute factor contributions are key manager differentiators</li> <li>Seeing renewed interest in low volatility and value strategies given the market environment</li> </ul>	
<b>Self Indexing</b>	<p><b>Increasing number of asset managers announcing plans to self index</b></p> <ul style="list-style-type: none"> <li>Benefits include increased flexibility, lower explicit cost (i.e., licensing fees) and potentially lower implicit costs</li> <li>Increasing number of ETF managers moving towards self indexed products in fixed income and smart beta</li> </ul>	
<b>Asset Stewardship &amp; ESG</b>	<p><b>Dedication to asset stewardship &amp; ESG initiatives becoming more common</b> — however standards still vary</p> <ul style="list-style-type: none"> <li>In a recent survey, 84%<sup>3</sup> of respondents said to be pursuing or considering ESG integration in their investment process. 60% of respondents began doing so in the last four years.</li> <li>Institutions demanding more transparency — what do I own and what is the impact ? Reporting on ESG metrics likely to become the norm but the industry is still establishing a base line measurement framework</li> </ul>	
<b>Noteworthy Index Events</b>	<p><b>MSCI</b></p> <ul style="list-style-type: none"> <li>Consultation underway to increase China A from 5% to 20%, as well as add midcap stocks. Announcement set for Feb 2019</li> <li>Saudi Arabia and Argentina to be promoted to Emerging Market status in May 2019</li> <li>In March 2019, companies with unequal voting structures, will be eligible for inclusion in MSCI standard indices</li> </ul>	<p><b>FTSE</b></p> <ul style="list-style-type: none"> <li>Announces formal addition of China A shares. Estimated around 5% initially and set to be added in multiple tranches</li> </ul>

<sup>1</sup> BAML Monthly Manager Survey, September and October 2018. <sup>2</sup> Boston Consulting Group, May 4, 2018. Unless otherwise noted, all data as of June 30, 2018.

<sup>3</sup> Morgan Stanley, Sustainability Signals, June 2018.

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# What We Do

# A Long History of Indexing Innovation

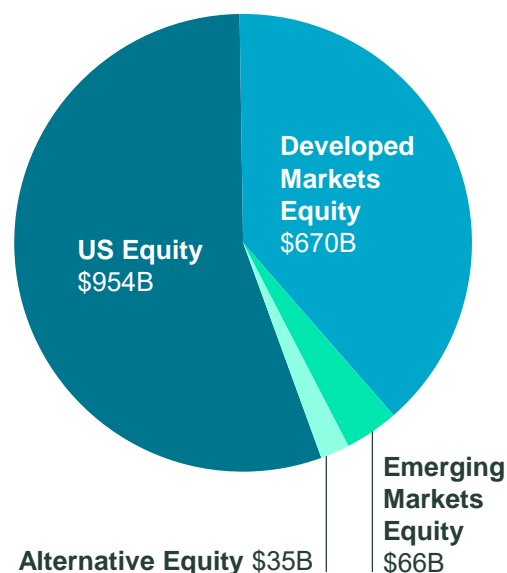
1970s	1990s	2000s	2010s
Standard Indices		FTSE RAFI US 1000 S&P HY Div Aristocrats	Nikkei 225  FTSE RAFI ALL World 3000 MSCI Min Volatility  RAFI Low Vol MSCI World Equally-weighted  Russell 1000 Single Factors FTSE EDHEC Risk Efficient EM MSCI Quality Mix Series  Kensho New Economies Indices
Our Proprietary Strategies: Tilted, Optimized, ESG (Multifactor)	<b>State Street Global Advisors launched International Index Fund and S&amp;P Strategy (1979)</b>	SSGA S&P 500 Equal Weighted (1993)  SSGA US Valuation-Tilted	SSGA Global Managed Vol SSGA Global Size Tilted SSGA Global Valuation Tilted  SSGA Europe Managed Vol  SSGA Canadian Div Tilted  SSGA Global Multi-factor SSGA US Multi-factor SSGA Europe Multi-factor  Gender Diversity Index — Multi-Factor Optimized  US Cap Weighted Self Indices — Multi-Factor + ESG

Source: State Street Global Advisors, as of June 30, 2018. Inception date of select portfolios.

# A Leading Manager of Global Indexed Assets

Equity Index AUM: \$1.72 Trillion (USD)

## Breakdown of Global AUM



## Cap Weighted

- US, Developed ex US, Emerging Markets
- Large, Mid & Small Cap

## Style/Sector

- Value & Growth
- Sector/Industry Specific
- ESG

## Smart Beta

- Third-Party Indices
- Proprietary Solutions-Tilted, Multifactor & ESG

## Alternatives

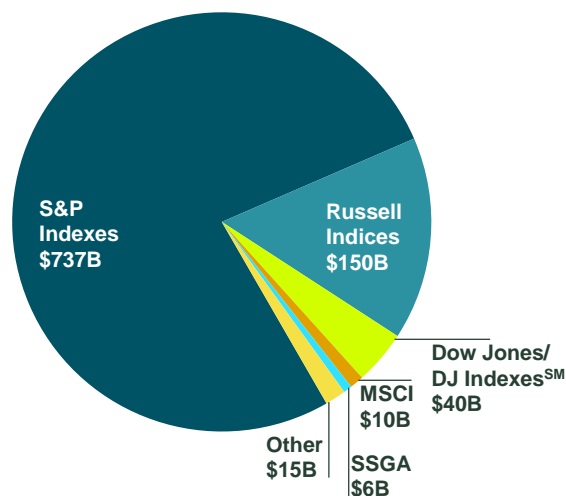
- Commodity
- REITs
- Infrastructure
- Natural Resources

Source: State Street Global Advisors. As of September 30, 2018. Exclusive of Emerging Markets Equities invested in other MSCI-benchmarked strategies such as MSCI ACWI and MSCI ACWI ex-US. Data as of September 30, 2018

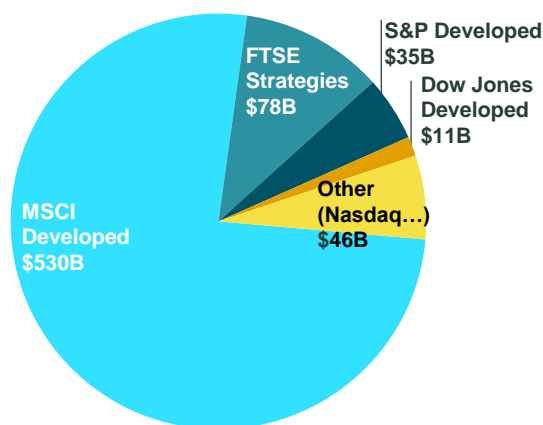
# A Leading Manager of Global Indexed Assets

Total Global Equity Beta Solutions Assets Under Management:  
\$1.72 Trillion (USD) as of September 30, 2018

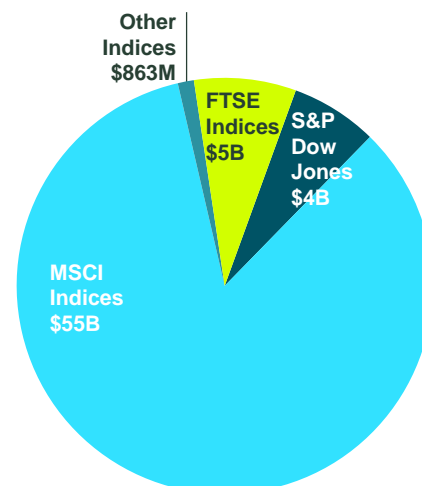
## US Index AUM \$960B



## International & Global Equity AUM \$699B



## Emerging Markets Equity AUM \$66B



Source: State Street Global Advisors. As of September 30, 2018.

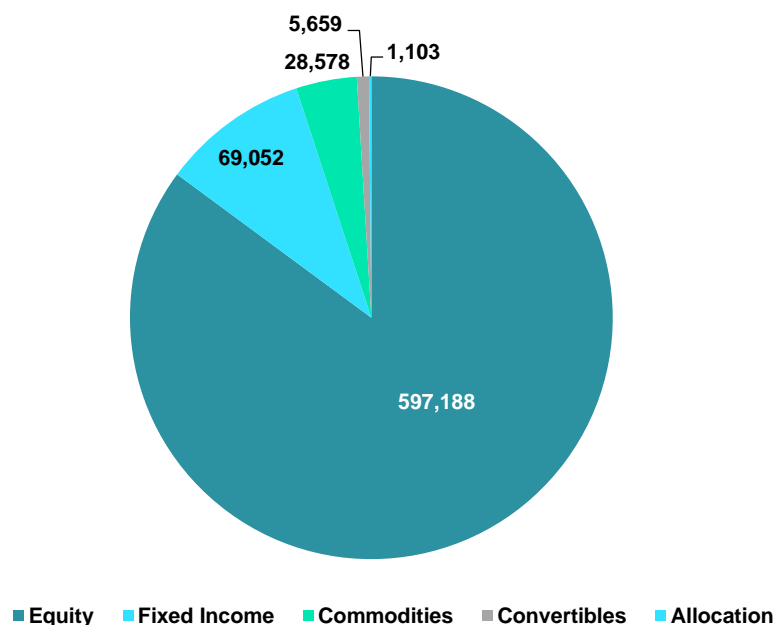
Exclusive of Emerging Markets Equities invested in other MSCI-benchmarked strategies such as MSCI ACWI and MSCI ACWI ex-US.

# SPDR: Third Largest ETF Manager

ETF AUM: \$702 Billion

Offerings: 254

## Global AUM by Asset Class



## Global ETF AUM

Region	Country of Domicile	ETF Offerings	Assets (\$M)
Americas	United States	140	651,618
EMEA	Ireland	94	30,632
APAC	Australia	16	4,216
	Hong Kong	2	10,972
	Singapore	2	4,141

Source: Morningstar, as of September 30, 2018.



# State Street Global Advisors' Smart Beta Equity Strategies & AUM

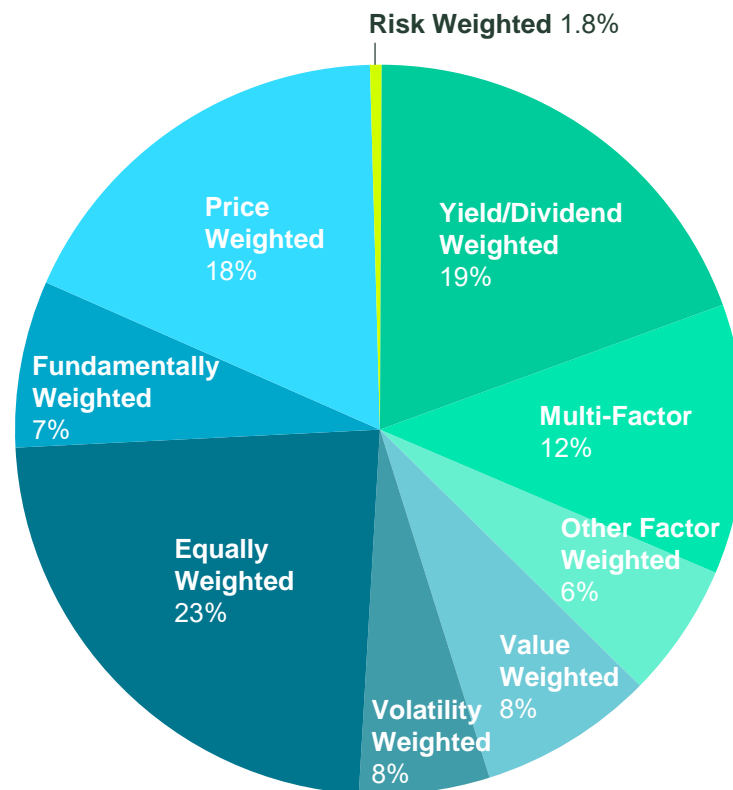
Total Smart Beta AUM \$140B

**State Street has been managing Smart Beta portfolios for over 25 years**

- Huge selection of strategies to meet varying interests of investors
- At forefront of research and development of Smart Beta solutions

**Investor flows into Smart Beta continues to be positive**

- In recent years, most interest in Low Volatility, Multi-Factor and Multi-Factor + ESG strategies

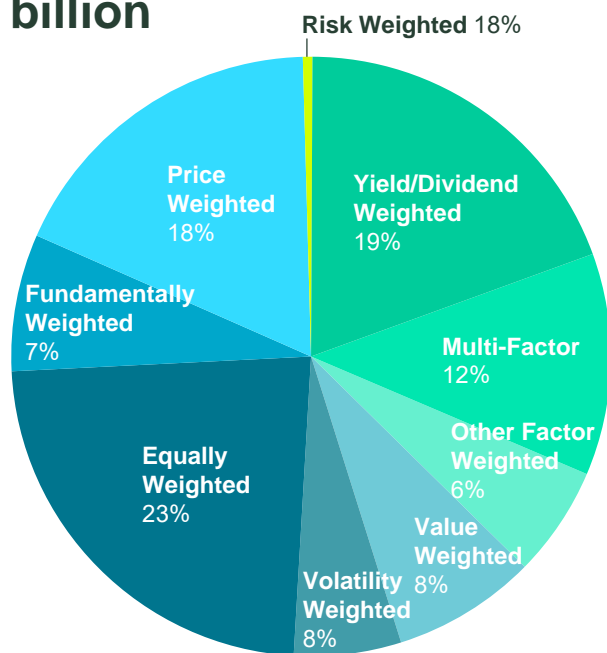


Source: State Street Global Advisors. Data as of September 30, 2018 in USD.

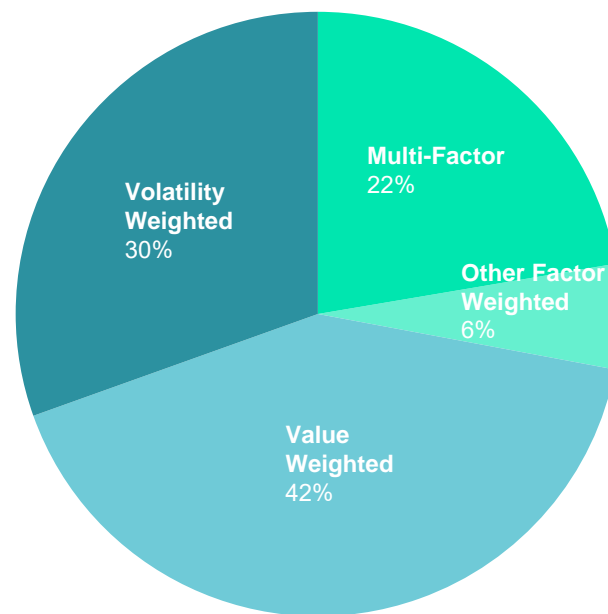
# Expertise in Smart Beta Portfolio Development and Implementation

Total Smart Beta AUM: \$140 Billion

## Index Provider Smart Beta Assets: \$125 billion



## Proprietary Smart Beta Assets: \$15 billion



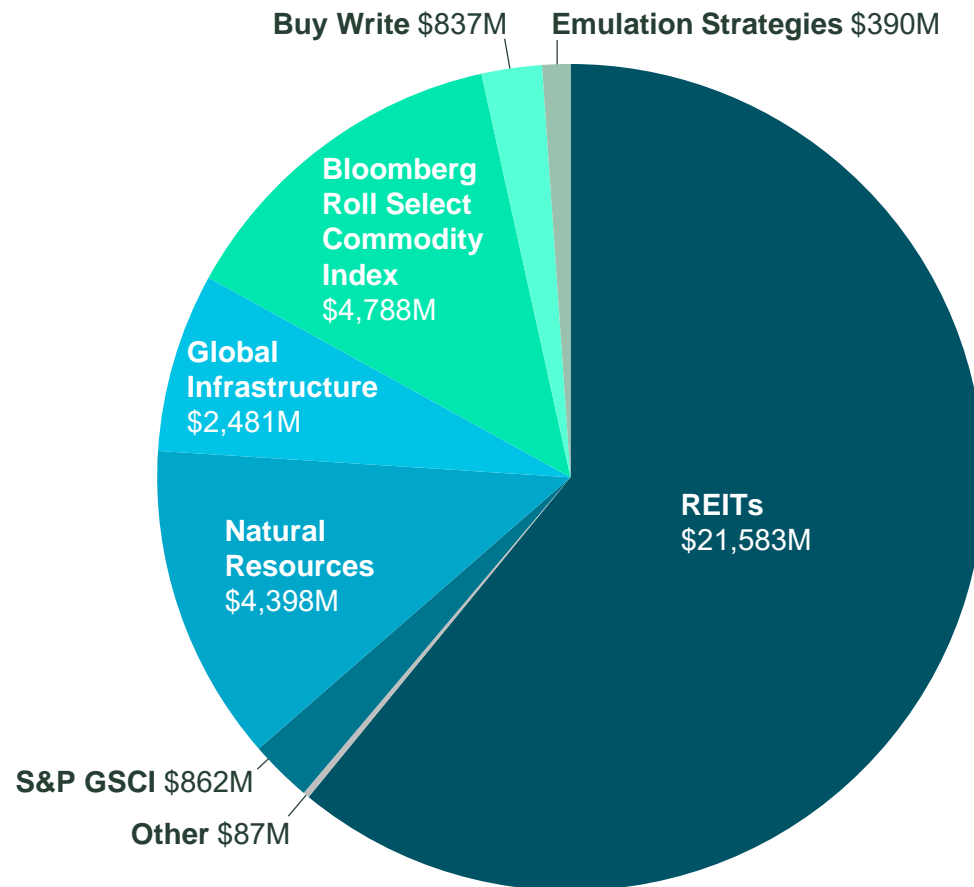
As of September 30, 2018. All figures in USD.

# Alternative Asset Betas

Commodities, REITs & Additional  
Alternative Asset Classes

## \$35,425 Million

AUM as of September 30, 2018



Source: State Street Global Advisors. Data as of September 30, 2018 in USD.

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# How We Do It

# Index Equity Management Techniques

Benchmark returns can be achieved through....

## Replication

Hold all or the majority of securities in the index at approximately market cap weight

Typically applied to reasonable sized portfolios with minimal liquidity or accessibility constraints

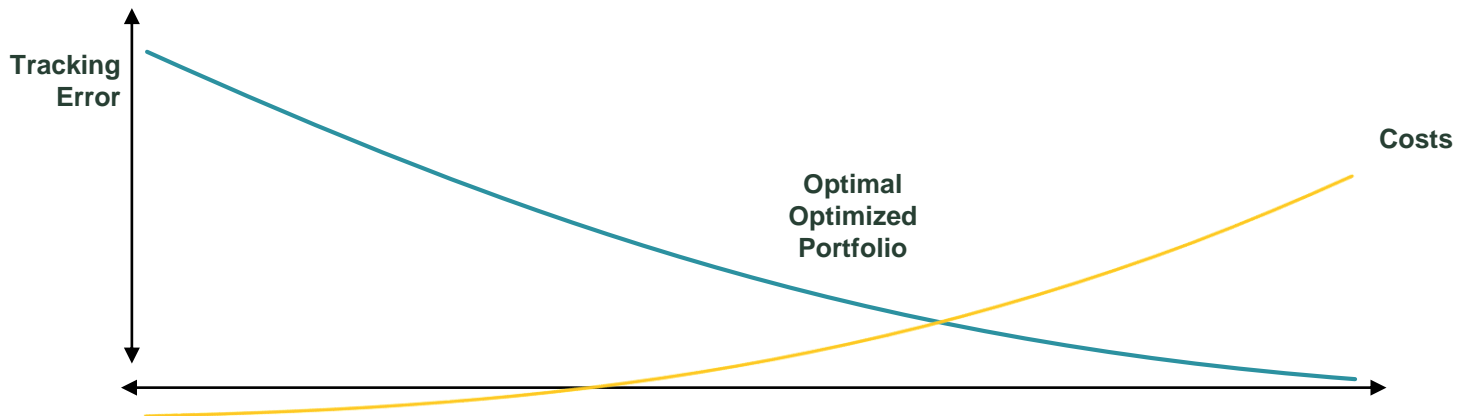
- i.e., US large cap or developed international

## Optimization

Construct a portfolio with the same risk & return characteristics of the index but with a smaller subset of securities

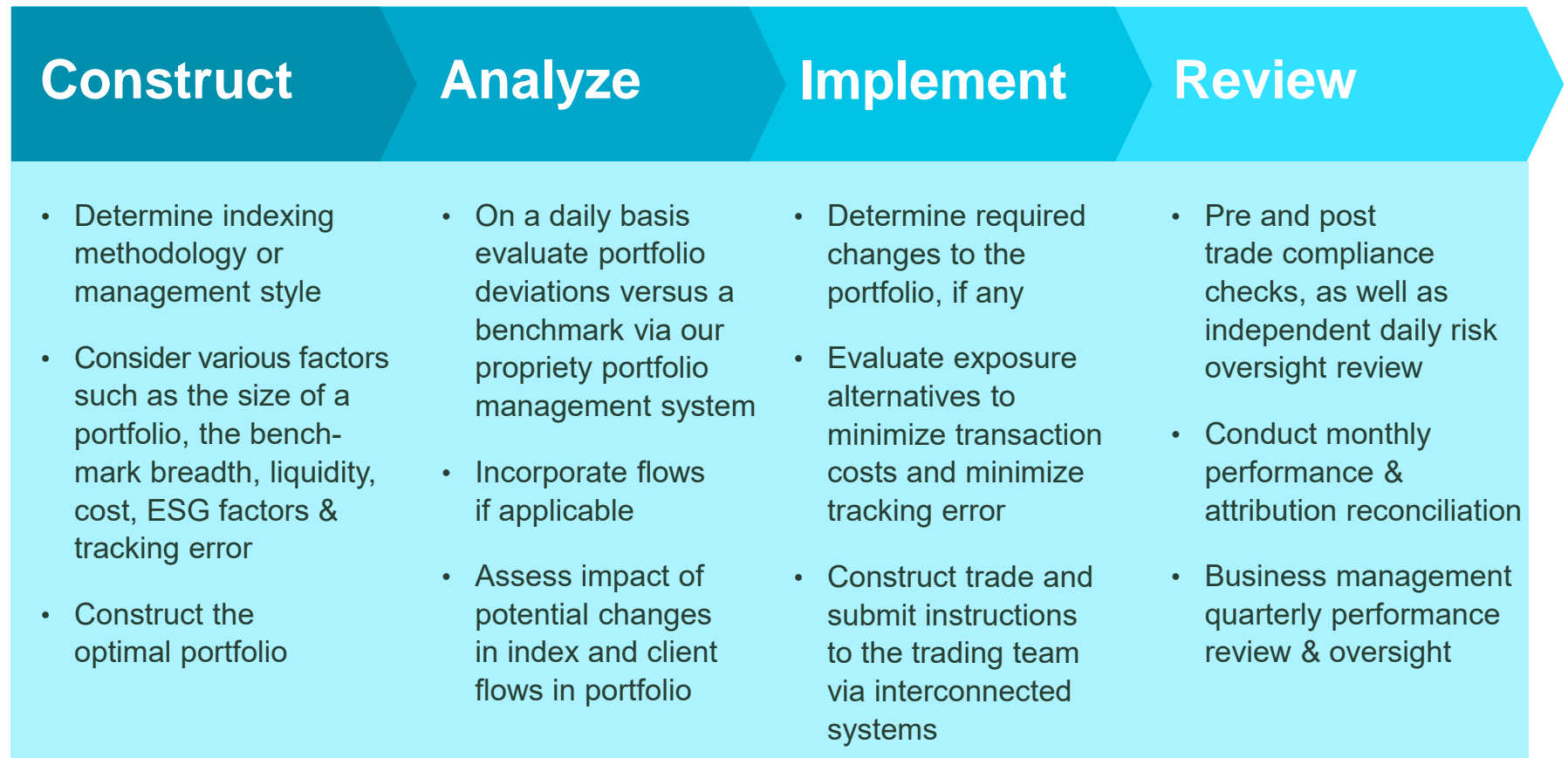
Typically applied to liquidity constrained portfolios

- i.e., International small cap (EM) or smaller sized portfolios



# Investment Process

A tried and tested process marrying human insight and technology



Source: State Street Global Advisors

# Improving Risk Controls & Oversight Through Technology

## Features of our portfolio management system:

- Full data integration with other State Street Global Advisors applications and risk/oversight teams
- Designed and customized to our process, workflow and portfolio universe
- Provides a comprehensive portfolio view for portfolio management, as well as risk and oversight
- Dedicated software development resources to ensure continuous development and improvements



Source: State Street Global Advisors

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# How We Add Value



# Why Choosing The Right Index Manager Matters?

**Indexes make numerous assumptions, which can lead to mistracking (+/-), and wealth erosion if not managed with precision and skill**

Index Assumptions	Reality
No transaction costs	Effective implementation techniques can minimize implicit and explicit costs (i.e., internal crossing)
All trades executed at market on close	Trading strategies can reduce turnover and improve execution
Dividends reinvested at ex date — before cash received	Equitize cash with futures when possible to minimize cash drag
Maximum foreign dividend withholding tax rate	Investors realize different withholding tax rates relative to the index, resulting in income via tax reclaims
Assumed corporate action elections	Multiple options may exist presenting opportunities to add value
Dividends are the only income source	Income from securities litigation payments or securities lending can help offset negative tracking*

\* Other sources of tracking deviation may include but are not limited to transactions costs, taxes, cash drag, futures tracking versus the benchmark or securities mis-weights.

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# Adding Value Through Effective Implementation

## **Index Reconstitution**

Pursue the best outcome for the client

## **Portfolio Rebalancing**

Be pragmatic  
It doesn't always make sense to trade

## **Index Events**

Research corporate actions/events to assess impact fully and manage risk

## **Trading**

Determine the most cost-efficient approach

## **Scrip Dividends**

Look for the Premium Cash versus stock

## **Derivatives**

Used to overlay cash and synthesize full exposure to equity markets

## **Stock Lending**

Can help offset costs and potentially add value

## **Core Beta Research**

Continuously look for opportunities to improve and evolve implementation

ESG integration/screening to our portfolios.

# Global Organized Trading (GOT): Adding Value Through Trading

## Strategy Design Using Expert Inputs

## GOT Results

Trading

Historically achieving better trading prices relative to the index provides meaningful results

Portfolio Management

Research

2015\*: \$70M+

2016\*: \$11M+

Transaction Costs

2017\*: \$48M+

Source: State Street Global Advisors. As of December 31, 2017. Figures in USD and approximate. This represents the aggregate gain/loss for both base and special situations.

\* This includes MSCI, FTSE and S&P events. Only 2017 includes other ad-hoc intra-quarter dates.

# Portfolio Rebalancing: Be Pragmatic

Example: S&P Quarterly Rebalance March 2017

	S&P500 Index	S&P400 Index	S&P600 Index
Rebalance Turnover	0.87%	4.27%	4.13%
Traded	0.55% approx. <small>(Typical State Street Global Advisors S&amp;P500 portfolio)</small>	3.92% <small>(Typical State Street Global Advisors S&amp;P400 portfolio)</small>	3.75% <small>(Typical State Street Global Advisors S&amp;P600 portfolio)</small>
Reduction in Turnover	24%	8%	9%

By monitoring ex-ante tracking closely, we can avoid trading some of the smaller names of a given index rebalance. This **reduces the overall turnover** of a portfolio and also **reduces the transaction costs** associated with it.

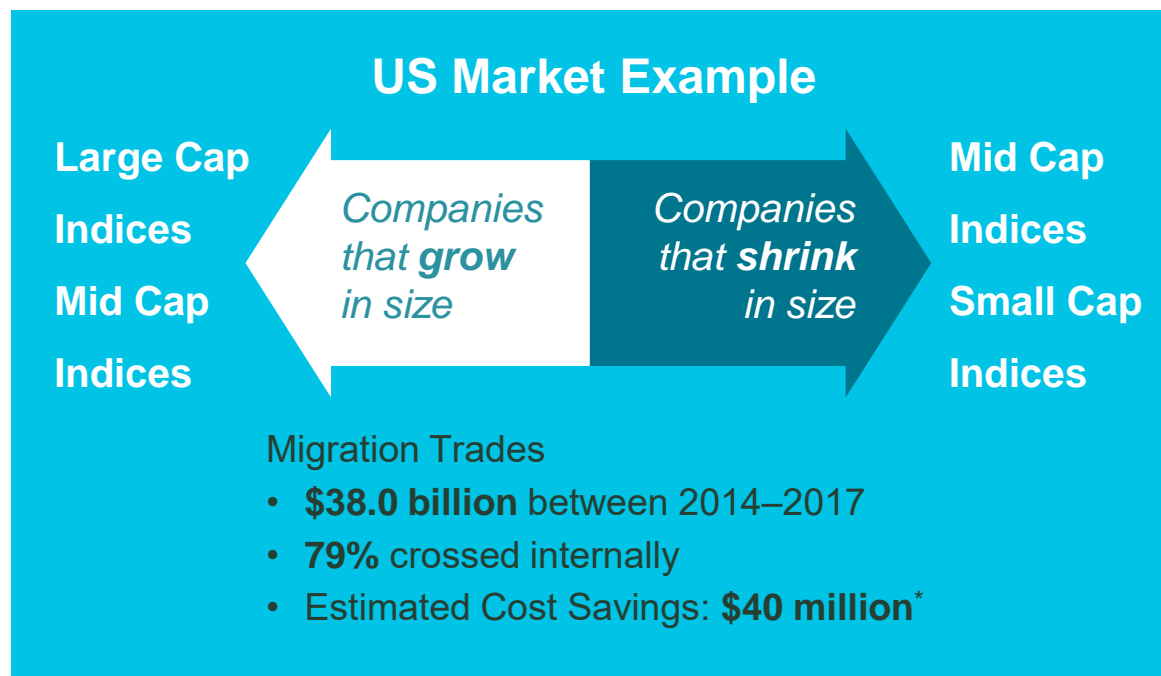
Source: State Street Global Advisors. For illustrative purposes only.

# Minimizing Turnover Through Internal Crossing

## Index Migrations

Companies regularly move between indices

A diverse book of business creates opportunities to reduce transaction costs around index change events



As of December 2017 updated annually. Source: State Street Global Advisors. All figures are in USD. Availability of internal crossing at State Street Global Advisors may be affected by your asset class, vehicle type, jurisdiction, or other factors. \* Impact and spread cost estimates are based on calculations provided by vendor tools that specialize in these estimations but are proprietary to the vendor. Commissions, taxes, and other explicit cost estimates are based on standard schedules published within State Street Global Advisors but may vary from the results experienced in actual trading. Savings are calculated by multiplying the estimated market trading costs (ranging from 10 to 20 basis points—depending on liquidity type and region) by the relevant trade volume amount. US large cap stocks account for about 64% of the noted savings.

# Russell Reconstitution Trade Crossing

- Turnover due to rebalancing for the annual Russell Reconstitution totaled **\$55 billion** for the combined years 2015–2018
- Over **\$30 billion was crossed internally**. This represents an average crossing rate for the period of **55%**.
- Estimated costs to trade a full slice of US large cap stocks in the open market is 10 bps while it costs about 20 bps for US mid/small cap stocks
- **Savings** passed on to our clients are estimated to be approximately **\$34 million<sup>1</sup>** from 2015

## Russel Index Family

Russel 1000	Russel 2000 Growth
Russel 1000 Growth	Russel 2000 Value
Russel 1000 Value	Russel 3000
Russel 2000	Russel Small Cap

**State Street Global Advisors US  
Russell Assets Under Management<sup>2</sup>:  
\$157B**

Source: State Street Global Advisors. All currency figures in USD. Updated annually. <sup>1</sup> As of June 30, 2018. Availability of internal crossing at State Street Global Advisors may be affected by your asset class, vehicle type, jurisdiction, or other factors. <sup>2</sup> Impact and spread cost estimates are based on calculations provided by vendor tools that specialize in these estimations but are proprietary to the vendor. Commissions, taxes, and other explicit cost estimates are based on standard schedules published within State Street Global Advisors but may vary from the results experienced in actual trading. Savings are calculated by multiplying the estimated market trading costs (ranging from 5 to 20 basis points--depending on liquidity type and region) by the relevant trade volume amount. US large cap stocks account for about 70% of the noted savings.

# Internal Crossing: A Powerful Source of Cost Savings & Liquidity

	Total Value <sup>4</sup>	In-kind <sup>3</sup> /Internal Crossing/ Unit Crossing	Estimated Cost Savings <sup>5</sup>	Transaction Cost Savings <sup>5</sup>
<b>US Market Case Study<sup>1</sup> (2015–2017)</b>	\$108.5 Billion	90.1% of the Total	0.06% of the Total	<b>\$64.4M</b>
<b>Non-US Developed Case Study<sup>2</sup> (2015–2017)</b>	\$30.9 Billion	75.9% of the Total	0.23% of the Total	<b>\$71.1M</b>

Availability of internal crossing at State Street Global Advisors may be affected by your asset class, vehicle type, jurisdiction, or other factors.

<sup>1</sup> Based on actual client order flow trading activity in the S&P 500® Defined Contribution Commingled Fund.

<sup>2</sup> Based on actual client order flow trading activity in the Bi-Monthly EAFE ERISA Commingled Funds.

<sup>3</sup> In-kind transfers are redemptions/contributions made via security transfers.

<sup>4</sup> For calendar years 2015–2017. It is not known whether similar results have been achieved after 2017.

<sup>5</sup> This represents estimated average savings across all aggregate trading over the period. These estimates are based on subjective judgments and assumptions and do not reflect the effect of unforeseen economic and market factors on decision making. There is no guarantee that a particular client transaction will experience the same level of savings. In fact, savings could differ substantially. Any savings is contingent upon other activity taking place on a given transaction day. Had other funds been selected, different results of transaction cost savings may have been achieved. All figures are in USD.

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# Derivatives and Other Exposures

**While the goal is to remain fully invested in stocks & invest locally but ....  
it may not be possible or the most pragmatic approach**

## Index Futures

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Portfolios hold some residual cash to either to accommodate daily cash flows or because of dividend accruals

Futures provide a cost-efficient and liquid way of gaining exposure to the underlying index while minimizing cash drag and trading costs

## Other Exposures

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Investing locally is preferred; however, accessibility and cost in some markets can presents challenges

ADRs/GDRs or swaps can be used in place of locally listed securities

Source: State Street Global Advisors



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# Securities Lending: Can Help Offset Costs and Potentially More

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## Securities Lending

Act of loaning a security for a specified period of time to generate additional income

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## Program Overview

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Leading securities lending provider since 1974

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Managed through State Street Securities Finance (SSSF):

- Lendable assets of \$3.86T
  - 138 borrower relationships
  - Scale & market presence is attractive for high quality borrowers
  - Manages quality of borrowers & collateral diversification
- 

Focus on income generation in a risk controlled manner

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Global coverage across equities and fixed income

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272 dedicated employees in 34 international markets

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As of December 31, 2017. Figures in USD. Updated annually. Securities lending programs and the subsequent reinvestment of the posted collateral are subject to a number of risks, including the risk that the value of the investments held in the collateral may decline in value and may at any point be worth less than the original cost of that investment.

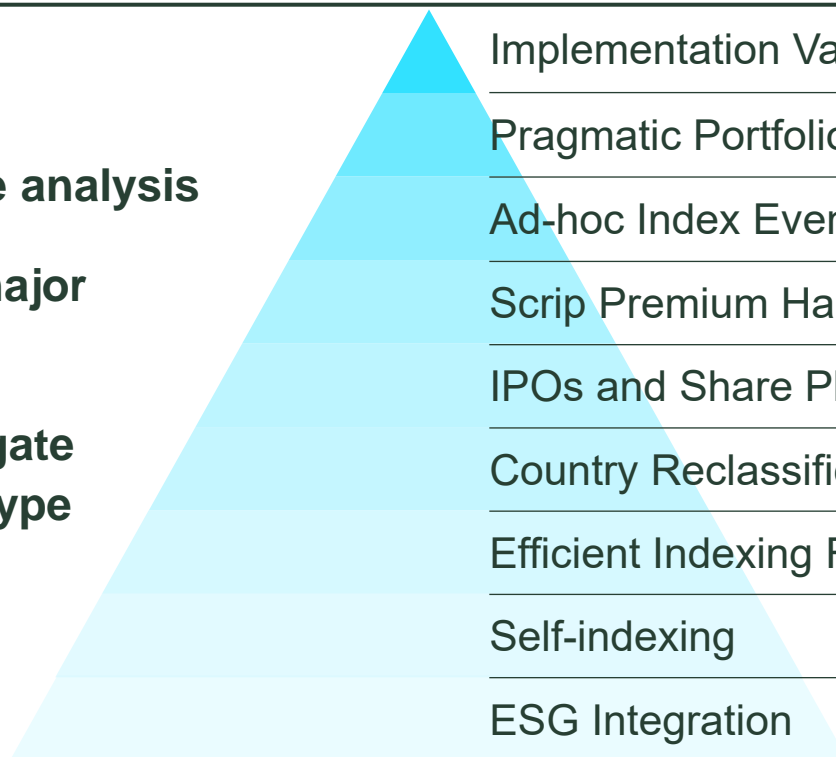
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# Core Beta Research: Overview

Improving portfolio implementation & building innovative core exposure strategies in an ever-evolving market microstructure

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- **Robust quantitative analysis**
- **Coverage across major index families**
- **Ability to disaggregate index changes by type for further insight**



Implementation Value Add

Pragmatic Portfolio Rebalancing

Ad-hoc Index Events

Scrip Premium Harvesting

IPOs and Share Placings

Country Reclassifications

Efficient Indexing Frontier

Self-indexing

ESG Integration

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The above information is for illustrative purposes only.

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# Why Choose State Street Global Advisors?

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## Indexing Skillfully Delivered

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### Research

Embedded research team delivering innovative solutions — such as factors, ESG and core beta implementation strategies

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## Client Centric Focus

Listen, understand and adapt to client needs and challenges

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## Performance

Deliver performance by striking the appropriate balance between return, risk and costs (>98% of funds have consistently tracked within expectations)\*

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## Team

Tenured and stable team with dedicated portfolio managers averaging 19 years experience

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## Asset Stewardship

Effective steward of client assets with a coordinated firm wide proxy voting platform and focused engagement

Source: State Street Global Advisors. \* Based on cumulative quarterly gross-of-fees returns for 1,322 GEBS managed pooled, and separate account portfolios from April 1, 2018 to June 30, 2018. Tracking error based on the difference between portfolio and benchmark cumulative returns.

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# Additional Information

# Index Vehicle Considerations for Institutional Investors — US

	CIT	Segregated Account	ETF	Mutual Fund	Notes
<b>Investor Eligibility</b>	ERISA (DB & DC) & tax exempt entities	All Institutions	All	All	CITs and segregated accounts are not registered products.
<b>Holding Period</b>	Long	Long	Varies by client but typically <1 yr	Long	Institutions may use ETFs for tactical or short term purposes. However, longer term use cases may also apply.
<b>Mandate Size</b>	Some minimum size requirements	Preferably large	No size requirements	No size requirements	Mutual funds may have multiple share classes with different fee and investment minimums.
<b>Relative Price Range</b>	Low to Ultra-Low	Typically High with fee minimums	Ultra- Low to Mid	Low –High (varies by manager/fund)	Effective fee rates vary based on mandate size. However, CITs generally have a lower effective fee rate than other investment vehicles listed.
<b>Ability to Replicate</b>	Yes	Yes — assuming sufficient size	Yes	Yes	Replication may vary by strategy or mandate size. Generally, smaller segregated accounts and/or less liquid exposures may be optimized.
<b>Customization</b>	Possible but limited	Yes	No	No	CITs can be combined to create custom fund of fund structures.
<b>Transaction Costs</b>	Typically Lower	Higher	Typically lower*	Medium	CITs (ex DC funds) isolate t-costs at the individual client level., thus shielding market impact from other participate flows. ETFs can minimize t-costs through the 'create redeem' process.
<b>Account set-up/ Opening &amp; Maintenance</b>	None for existing funds — some legal maintenance	Complex (all)	Purchased on exchange — registered fund	Purchased on exchange — registered fund	Set up time for segregated accounts can be complex and lengthy, particularly in the case of emerging markets. Additional legal attention and documentation are required as well.

\* Frequent trading of ETFs could significantly increase commissions and other costs such that they may offset any savings from low fees or costs.

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# Fixed Income Index Investing

# A Leader in Fixed Income Indexing

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## **We Offer Real Breadth and Depth in Fixed Income**

- Managing fixed income index strategies for over 30 years
- Over 40 fixed income strategies offered globally
- Investment centres in Boston, London, Singapore, Sydney, and Tokyo

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## **Our Heritage is Index Investing**

- Over 30 portfolio managers and dedicated trading desk
- Our PMs average more than 15 years of experience
- Expertize across all major regions, currencies and sectors

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## **Innovative Client Investment Solutions**

- Market-leading research
- Real-world innovations that unlock new markets for investors
- ESG investment solutions

As of September 30, 2018

# Intelligent Indexing in Fixed Income

## Index Change Strategies

**Minimize Turnover**  
Pursue the best  
outcome for the client

## Portfolio Rebalancing

**Be pragmatic**  
It doesn't always  
make sense to trade

## Primary Markets

**Look for the premium:**  
Access liquidity

## Security Selection

Experienced portfolio managers  
skilfully incorporate relative value in  
sampling approach

## Trade Execution

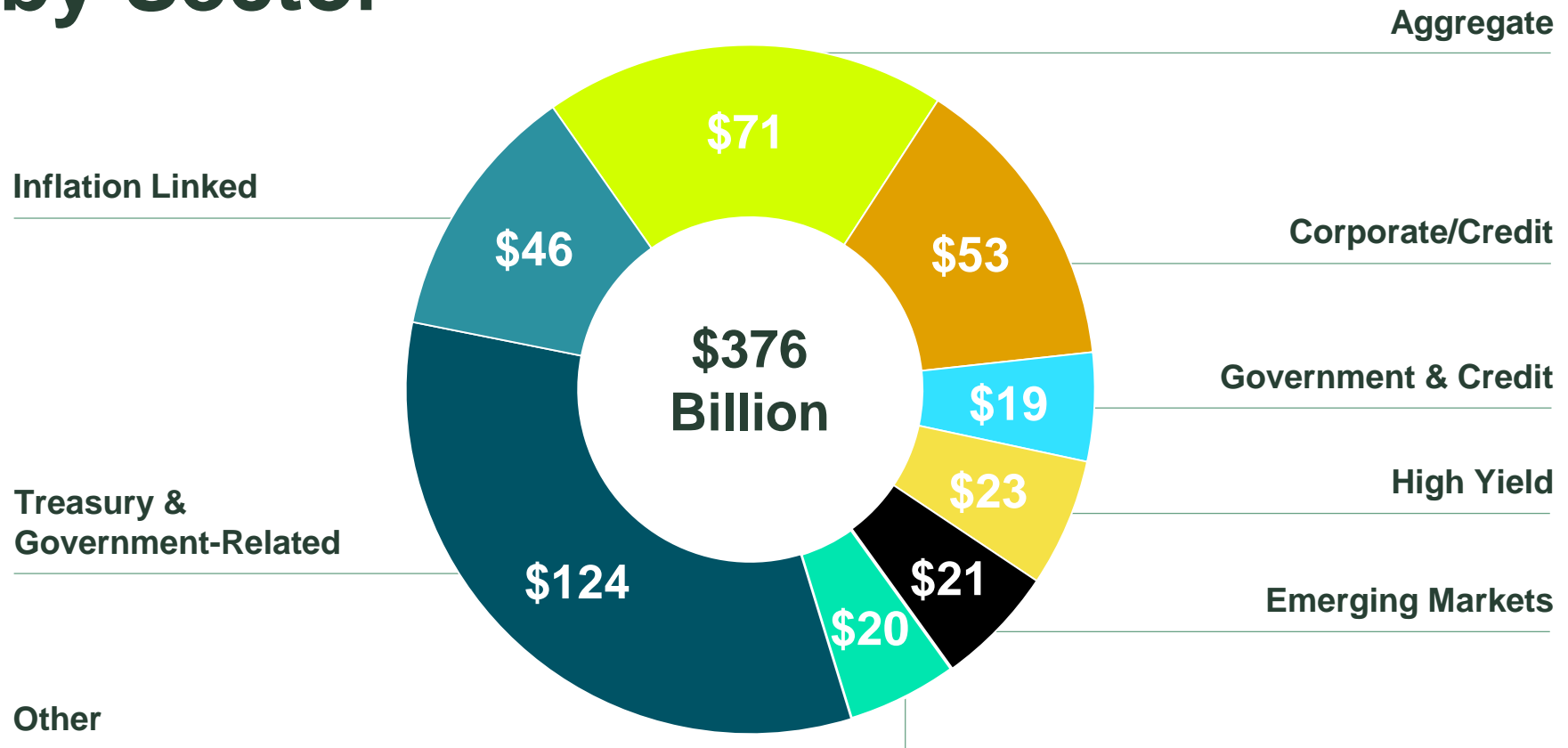
**Minimize costs**  
Experienced specialists, global  
reach and wide broker network

## Minimising Tax Drag

Proactive positioning across taxable  
strategies (e.g., Emerging  
Market Debt)



# Indexing Assets Under Management by Sector



As of September 30, 2018

Source: BIG (Fund View). Total Assets Under Management (AUM) is stated in USD and is for Fixed Income assets managed by the Fixed Income Beta Solutions team only, exclusive of all cash and securities lending assets and fixed income portfolios managed by ISG. All calculations are unaudited.

Other includes: indexing accounts with large degrees of customization, Convertible, Securitized and Municipal Indexing Strategies.

Fixed Income Indexing AUM of US\$376.07 bn is equivalent to: EUR 324.10 bn; GBP 288.63 bn ; CHF 369.28 (based on Bloomberg FX data as at date shown).

# Research and Innovation

From Early Days

To Present Times

1993

Creators of the  
World's First ETFs

**SPDR®**

2004

US High Yield  
Indexed Strategy

2011

First Indexed Local  
EM Bond Fund

2014

First US  
Convertible Bond  
Indexed ETF

2016

Multi-Factor Emerging  
Markets Bond Strategy

Important Disclosure: ETFs managed by State Street Global Advisors have the oldest inception dates within the US, Hong Kong, Australia, and Singapore. State Street Global Advisors launched the first ETF in the US on January 22, 1993; launched the first ETF in Hong Kong on November 11, 1999; launched the first ETF in Australia on August 24, 2001; and launched the first ETF in Singapore on April 11, 2002.

# Global Presence — Local Expertize

## US Team

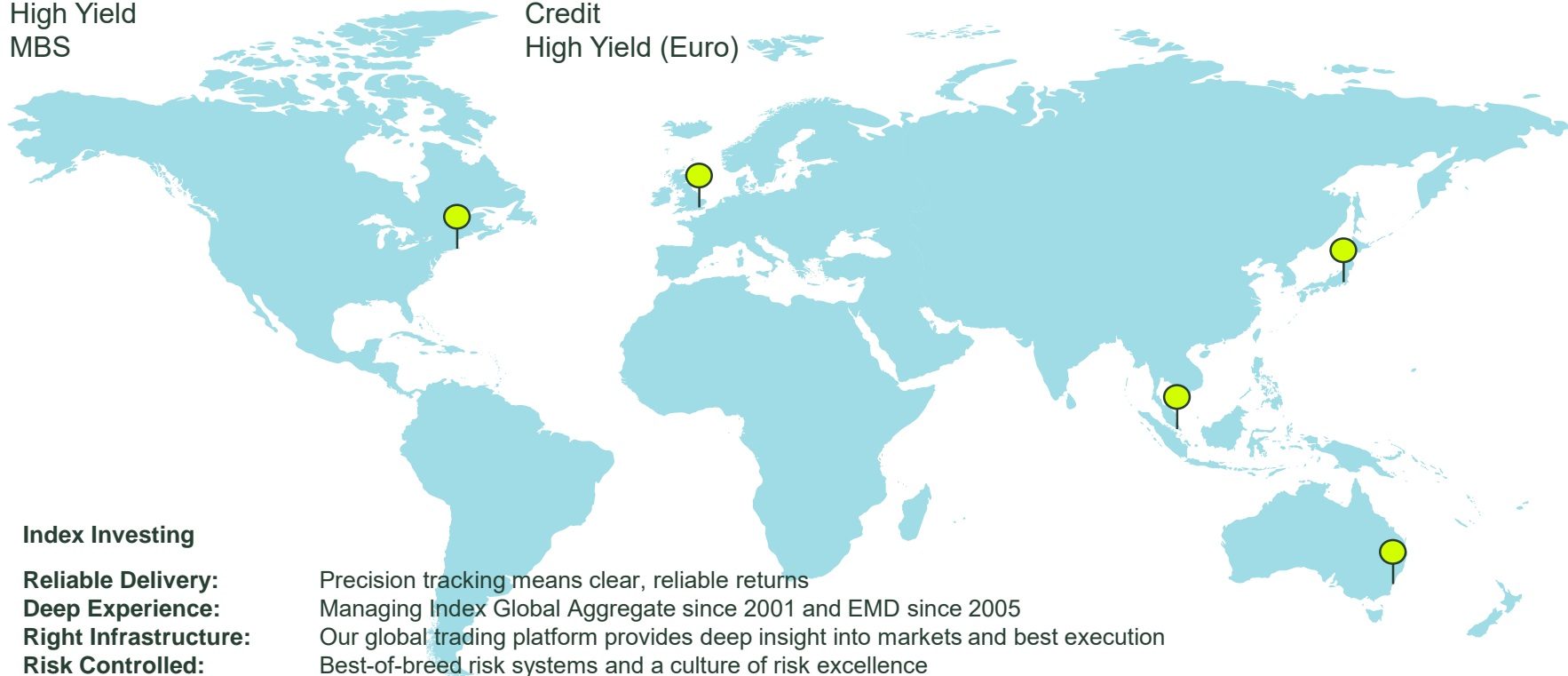
US Aggregate  
Treasury  
Credit  
High Yield  
MBS

## European Team

European & Global Aggregate  
Emerging Market Debt (HC & LC)  
Treasury  
Credit  
High Yield (Euro)

## Asia-Pacific Team

Asian Aggregate  
Treasury  
Credit



# 150+ Dedicated Fixed Income Professionals Globally

## Global Chief Investment Officer



Matthew Steinaway, CFA

## Indexed Fixed Income

**Venky Venkataramani, CFA**  
Global Head of Fixed Income Beta

Indexing  
Smart Beta

33 Investment Professionals

## Macro Strategies

**Matthew Nest, CFA**  
Global Head of Macro Strategies

Currency Solutions  
Active Rates  
Multi-sector Fixed Income

23 Investment Professionals

## Credit Strategies

**Chuck Moon**  
Global Head of Credit Strategies

High Yield  
Investment Grade  
Municipals  
Structured Credit  
Short Maturity Credit

23 Investment Professionals

## Cash Management

**Pia McCusker**  
Global Head of Cash Management

Cash Management  
Securities Lending  
Cash & Structured Credit Research  
Enhanced Cash

22 Investment Professionals

## Fixed Income Quantitative Research

**Ramu Thiagarajan, PhD**  
9 Research Analysts

9 FI Portfolio Strategists & Specialists

## Insurance Solutions

**Mark Johnston**  
6 Investment Professionals

18 Traders  
(11 Fixed Income & 6 FX)

## Smart Beta

**Collin Crownover, PhD**

13 ESG & Corporate Governance Professionals\*

As of September 30, 2018

\* Cover Fixed Income and Equities.

CFA® is a trademark of the CFA Institute.

# Specialization within Fixed Income

## North America Index Investing Organization

Specialization provides the insights to manage multiple portfolios and is designed to deliver world-class index solutions and performance



**Venky Venkataramani, CFA**  
Global Head of Fixed Income Index Strategies



**Patrick Bresnehan, CFA**  
North America Head of Fixed Income Index Strategies

### Credit

Mike Brunell, CFA  
Brad Sullivan, CFA  
Christopher Distefano  
Kyle Kelly, CFA, FRM

Dave Marchetti, CFA  
Frank Miethe, CFA  
Read Burns  
Christian Hoffmann, CFA

### Global Rates

Jim Kramer  
Orhan Imer, PhD, CFA  
Nikita Imennov, PhD, FRM

Cindy Moy  
Joanna Madden

### Securitized

Marc DiCosimo, CFA  
Nic Fischer, CFA  
Mike Przygoda, CFA

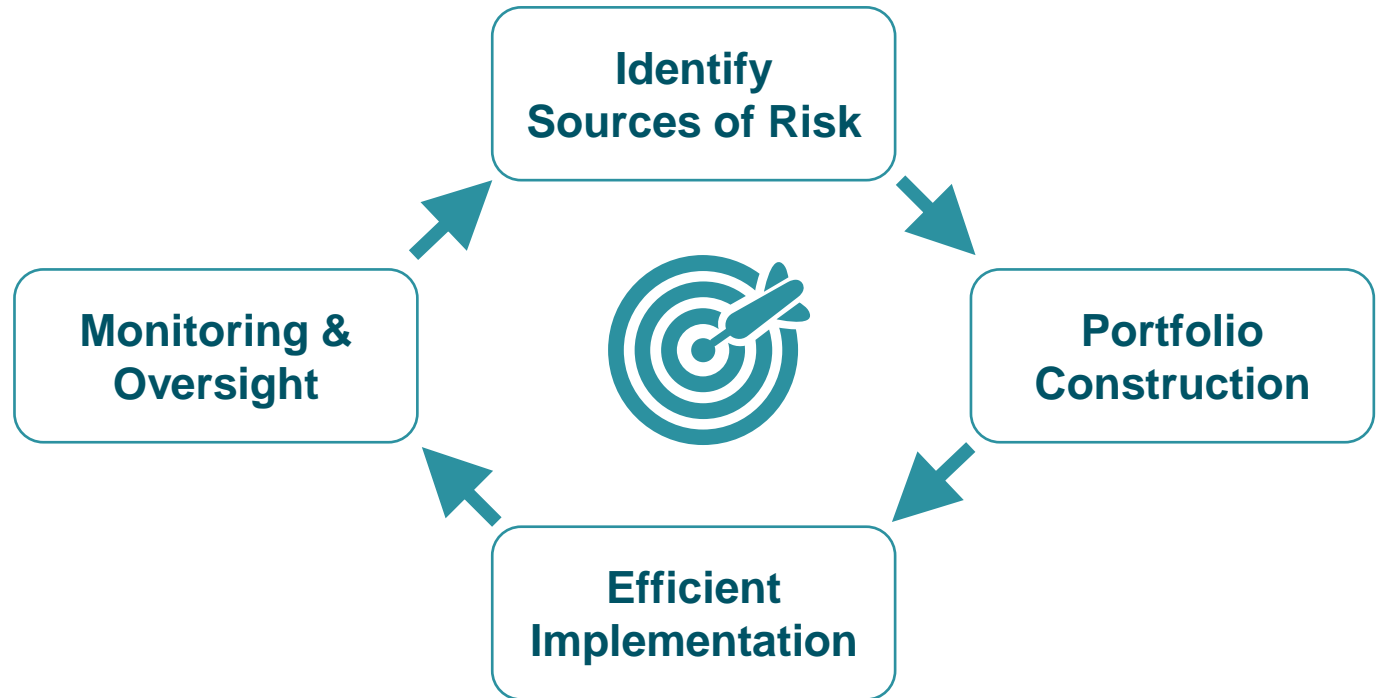
Source: SSGA, as of September 30, 2018.

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# Index Investment Process

# Index Investment Management Process

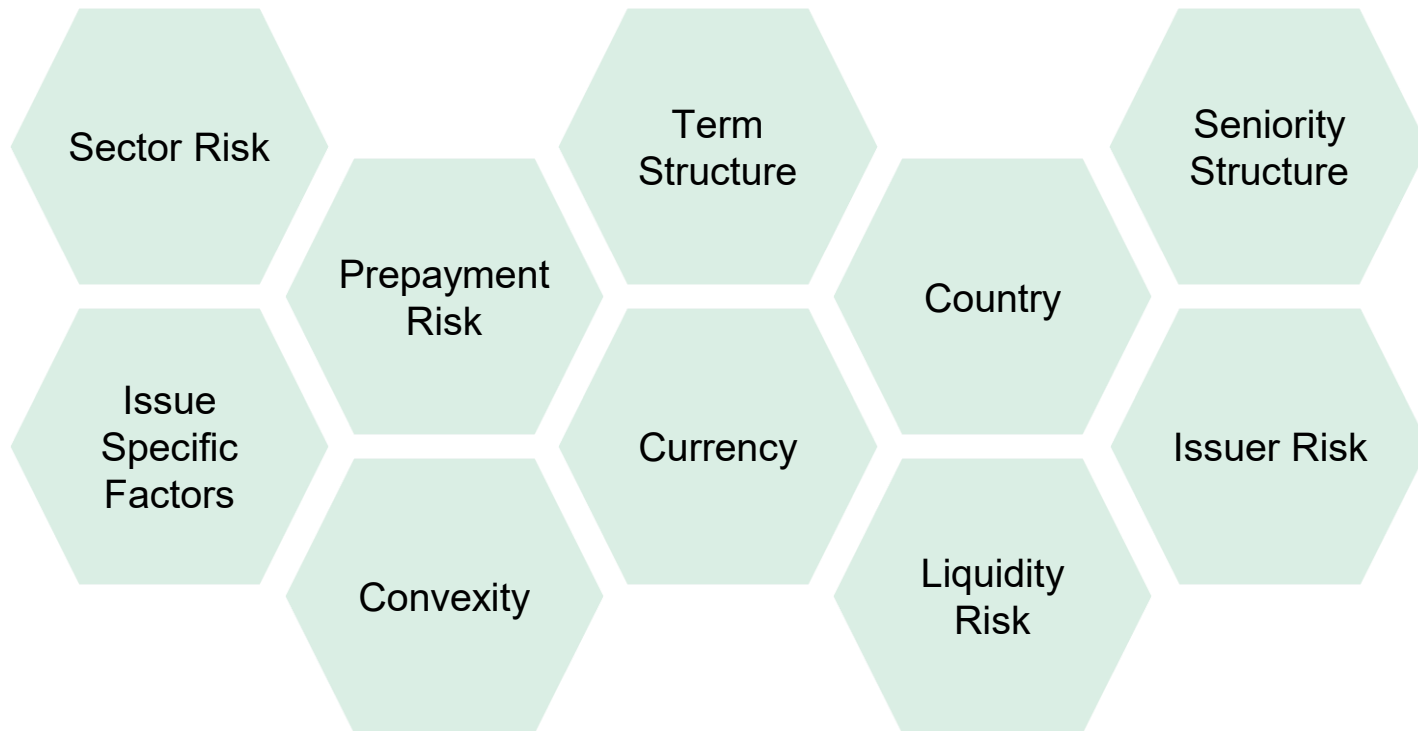
- We understand markets
- We manage risks and costs
- Aim to deliver superior index investment outcomes



Source: SSGA

# We Identify Sources of Risk

We slice the benchmark into precise risk categories and construct investment portfolios designed to deliver the desired investment outcome.

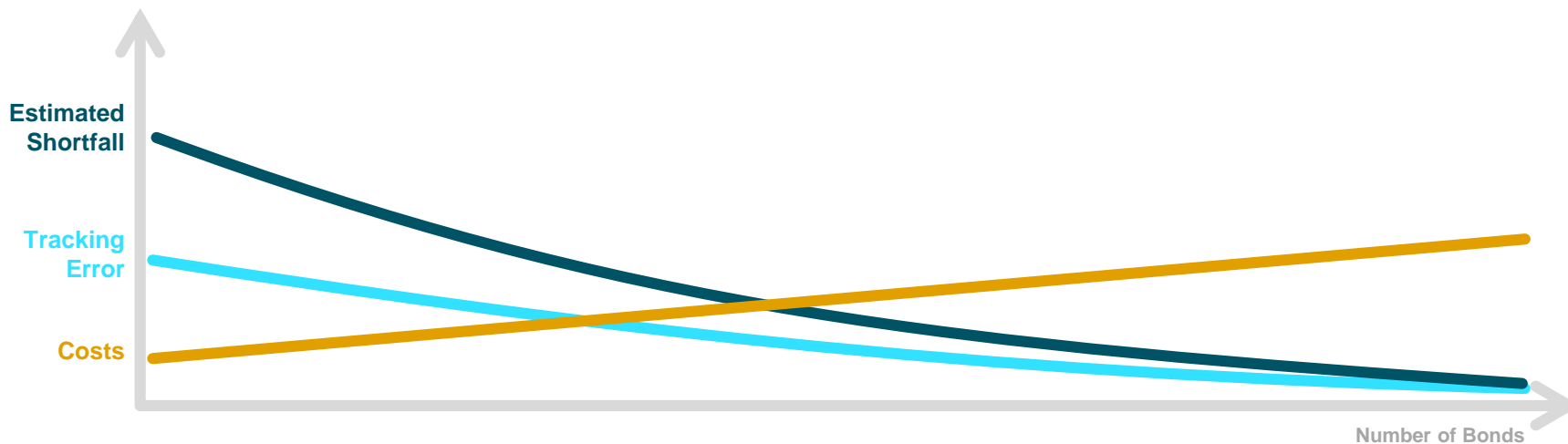


Source: SSGA



# Constructing the Portfolio

Our stratified sampling process has a proven track record of delivering consistent investment outcomes



## From Stratified Sampling

Best for broad investment-grade mandates  
We aim to minimize risk exposures and limit trading costs to achieve consistent tracking error

## To Full Replication

Employed in a small set of indices with highly liquid securities. High transaction costs may increase tracking error for larger indices

The above information is for illustrative purposes only.

# We Trade and Implement Efficiently

## Portfolio Managers Work with Our Dedicated Securitized Trading Desk to Achieve Best Execution

- Centralized trading desk
- Dedicated EMD, Credit and MBS Traders

## Strong Relationship with Major Broker/Dealers

- Leverage our size to achieve superior execution
- Trade in primary and secondary markets
- Adapt trading venue for size, instrument and conditions

## Global Desk In Place For Over 16 Years

**24-hour** trading capabilities, with traders located in Boston, London, and Hong Kong

**34 Traders Servicing  
243 Portfolio Managers Across  
10 Investment Centres**

**US\$2.3 trillion** notional traded in 2017

**2.9 Million Tickets  
Executed Last Year**

As of January 18, 2018. Asset classes include equity, fixed income, futures and currency Fixed Income figures include activity under Boston and London desks only.

# Interconnected Functions Improve Control and Oversight



## Proprietary PM System

- Designed and built around our portfolio management process and workflow
- Comprehensive view of portfolios
- Full data integration with other SSGA applications
- Continuous development and improvements

# What We Deliver

Fixed income  
business with  
**proven track  
record**

**Expertize**  
across all  
major regions,  
currencies and  
sectors

Managed  
by an  
**experienced  
team** within a  
**disciplined  
framework**

**Investment  
innovation**  
unlocks new  
markets and  
strategies

Emphasis on  
**collaboration**  
to support  
clients in  
achieving the  
desired  
outcome

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# Appendix A: Important Disclosures

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# Important Disclosures

For Investment Professional Use Only.

Past performance is not an indicator of future results. Diversification does not ensure a profit or guarantee against loss.

Equity securities are volatile and can decline significantly in response to broad market and economic conditions.

Indexing strategies are managed with a passive investment strategy, attempting to track the performance of an unmanaged index of securities. As a result, indexing strategies may hold constituent securities of the Index regardless of the current or projected performance of a specific security, which could cause their return to be lower than if they employed an active strategy. While the strategy seeks to track the performance of the Index as closely as possible, its return may not match or achieve a high degree of correlation with the return of the Index due to operating expenses, transaction costs, cash flows and operational inefficiencies.

Foreign investments involve greater risks than US investments, including political and economic risks and the risk of currency fluctuations all of which may be magnified in emerging markets. Investing in foreign domiciled securities may involve risk of capital loss from unfavourable fluctuation in currency values, withholding taxes, from differences in generally accepted accounting principles or from economic or political instability in other nations. Investments in emerging or developing markets may be more volatile and less liquid than investing in developed markets and may involve exposure to economic structures that are generally less diverse and mature and to political systems which have less stability than those of more developed countries.

Currency Risk is a form of risk that arises from the change in price of one currency against another. Whenever investors or companies have assets or business operations across national borders, they face currency risk if their positions are not hedged.

The trademarks and service marks referenced herein are the property of their respective owners. Third party data providers make no warranties or representations of any kind relating to the accuracy, completeness or timeliness of the data and have no liability for damages of any kind relating to the use of such data.

Investing in futures is highly risky. Futures positions are considered highly leveraged because the initial margins are significantly smaller than the cash value of the contracts. There are a number of risks associated with futures investing including but not limited to counterparty credit risk, basis risk, currency risk, derivatives risk, foreign issuer exposure risk, sector concentration risk, leveraging and liquidity risks.

Derivative investments may involve risks such as potential illiquidity of the markets and additional risk of loss of principal.

Investing involves risk including the risk of loss of principal. Past performance is not a guarantee of future results.

This document contains certain statements that may be deemed forward-looking statements. Please note that any such statements are not guarantees of any future performance and actual results or developments may differ materially from those projected. The information provided does not constitute investment advice and it should not be relied on as such. It should not be considered a solicitation to buy or an offer to sell a security. It does not take into account any investor's particular investment objectives, strategies, tax status or investment horizon. You should consult your tax and financial advisor. All material has been obtained from sources believed to be reliable. There is no representation or warranty as to the accuracy of the information and State Street shall have no liability for decisions based on such information.

Bonds generally present less short term risk and volatility than stocks, but contain interest rate risk (as interest rates rise bond prices usually fall); issuer default risk; issuer credit risk; liquidity risk; and inflation risk. These effects are usually pronounced for longer-term securities. Any fixed income security sold or redeemed prior to maturity may be subject to a substantial gain or loss.

Investing in high yield fixed income securities, otherwise known as "junk bonds", is considered speculative and involves greater risk of loss of principal and interest than investing in investment grade fixed income securities. These Lower-quality debt securities involve greater risk of default or price changes due to potential changes in the credit quality of the issuer.

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# Important Disclosures

Government bonds and corporate bonds generally have more moderate short-term price fluctuations than stocks, but provide lower potential long term returns.

ETFs trade like stocks, are subject to investment risk, fluctuate in market value and may trade at prices above or below the ETFs net asset value. Brokerage commissions and ETF expenses will reduce returns.

Passively managed funds invest by sampling the index, holding a range of securities that, in the aggregate, approximates the full Index in terms of key risk factors and other characteristics. This may cause the fund to experience tracking errors relative to performance of the index.

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Web: [www.ssga.com](http://www.ssga.com)

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Tracking Code: 2386596.1.1.AM.INST

Expiration Date: May 31, 2019

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# Appendix B: Biography



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# Biography



## **Sonya K. Park**

Sonya is a Vice President of State Street Global Advisors and a Senior Relationship Manager in the San Francisco Office. She is responsible for managing existing SSGA client relationships and driving new business development in the Western U.S. Prior to joining State Street Global Advisors in 2011, Sonya was a Vice President at Dimensional Fund Advisors in the Institutional Sales & Services Group.

Prior to Dimensional Fund Advisors, Sonya was an Associate Director at Watson Pharmaceuticals. Sonya has also worked at Lehman Brothers as an Equity Research Analyst and began her career at SEI Corporation.

Sonya earned a BA from the University of Pennsylvania and an MBA from the NYU Stern School of Business and has been working in the financial services industry since 1993. Sonya holds the FINRA 7 and 63 registrations. Sonya also holds the NFA Series 3 and is an Associated Person of SSGA Funds Management, Inc. ('SSGA FM') SSGA FM is a Commodity Trading Advisor registered with the Commodity Futures Trading Commission.