



**Connecticut Retirement Plans and Trust Funds**  
**Quarterly Report**

December 31, 2019



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All data is as of December 31, 2019 unless otherwise noted.

**PAST PERFORMANCE IS NOT NECESSARILY INDICATIVE OF FUTURE RESULTS. ACTUAL PERFORMANCE MAY VARY.**

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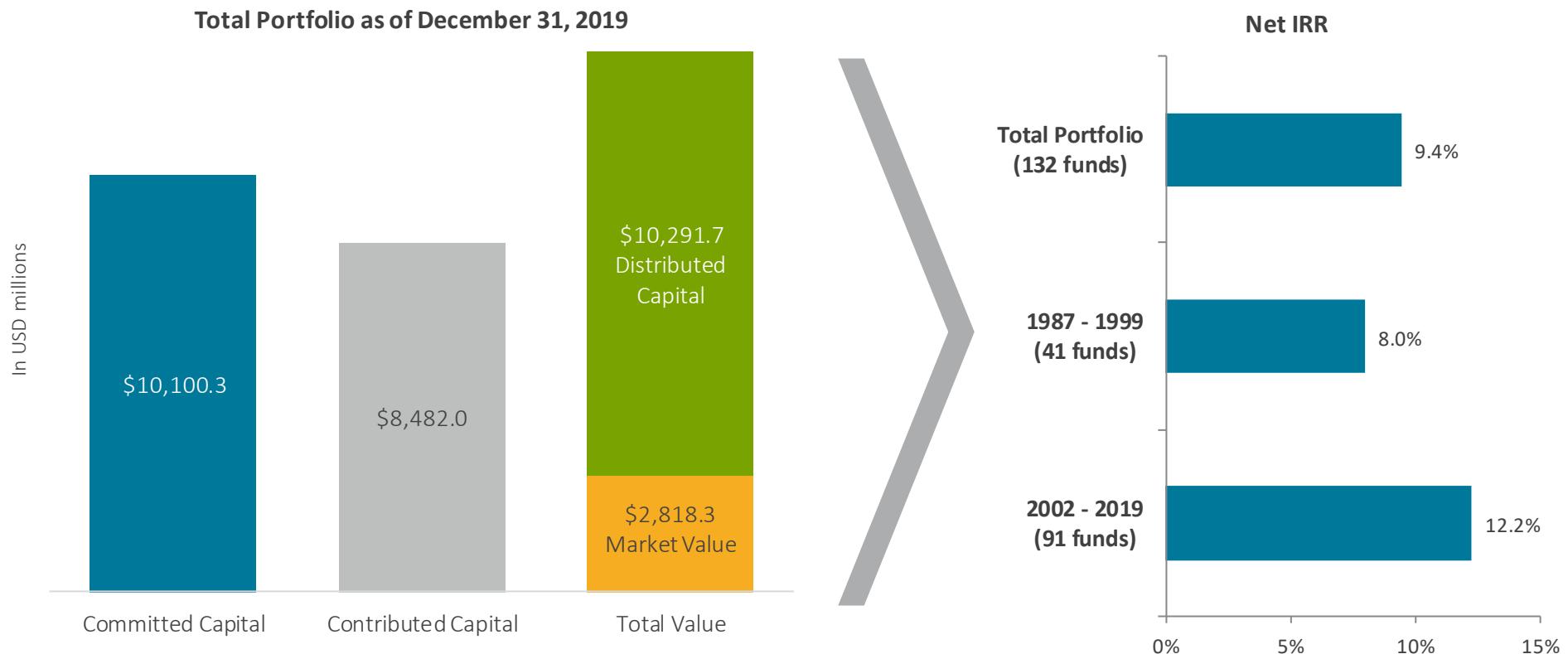
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# I. Quarterly Update

- The State of Connecticut Retirement Plans & Trust Funds (“CRPTF”) established the Private Investment Fund (“PIF”) with the objective to outperform the public equity market over the long term.
- StepStone Group LP (“StepStone”) was engaged by CRPTF October 2015 to provide private equity advisory services for prospective investment opportunities and monitoring and reporting services for existing and new investments.
- This report has been prepared by StepStone and reviews the performance of the PIF and discusses significant market developments and trends.
- The performance presented in this report is based on cash flows, valuations, and activity data reported by PIF’s fund managers as well as historical data transitioned by StepStone from PIF’s prior advisor.
- There is a reporting time lag in private equity due to the time necessary to collect and corroborate the performance data. Similar to other investors, PIF’s fund managers typically deliver their financial reports between 60 and 90 days after quarter end. As a result, the performance data provided herein is as of December 31, 2019. All quarter-end references are on a calendar year basis.
- PIF began building its private equity portfolio in 1987 and has an 10% long term target allocation to private equity. In order to implement its investment strategy, PIF commits capital to various limited partnership funds managed by fund managers.
- Funds are typically structured with 4 to 6 year investment periods and 10 to 12 year lives. Early in their life cycle, funds typically exhibit negative cash flow and negative or low returns as capital called from investors to fund new underlying investments and fees to managers exceed the cash distributed from the underlying investments in the form of income, appreciation, or return of capital. Accordingly, while this report includes short-term performance results, the reader is encouraged to focus on long-term performance results.
- The returns within this report are calculated using the internal rate of return (“IRR”) method. The IRR calculation is industry standard for measuring performance of private equity funds and recommended by the CFA Institute. The IRR calculation is a dollar-weighted return measurement, which considers both cash flow timing and amount.

# Portfolio Summary

- Since inception through December 31, 2019, the PIF program committed \$10.1 billion to 132 funds, made \$8.5 billion of contributions, received \$10.3 billion of distributions, and has a market value of \$2.8 billion, which represents approximately 7.5% of total CRPTF.
- Since inception through December 31, 2019, PIF's total portfolio generated a net IRR of 9.4% and a net TVPI of 1.5x invested capital.
- PIF's fund investments made prior to 2002 generated a lower net IRR of 8.0% and reduced the aggregate return.
- An investment moratorium was enacted between 1999 and 2002.
- PIF's fund investments with vintages 2002 through 2019 performed better, generating a net IRR of 12.2% and a net TVPI of 1.6x invested capital.



The returns presented herein are calculated using the internal rate of return methodology and are net of underlying fund manager fees and expenses, but before any fees paid to StepStone. Past performance is not necessarily indicative of future results and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.

Results include data from all CRPTF portfolios.

Contributed Capital includes funding both inside and outside of the commitment.

# Quarterly Snapshot



<u>Returns - 4Q 2019</u>		
	<u>Quarter Ended</u>	<u>12 Months Ended</u>
PIF Net IRR	4.8%	16.6%
Russell 3000 + 250 bps <sup>1</sup>	9.7%	33.5%

*In USD millions.*

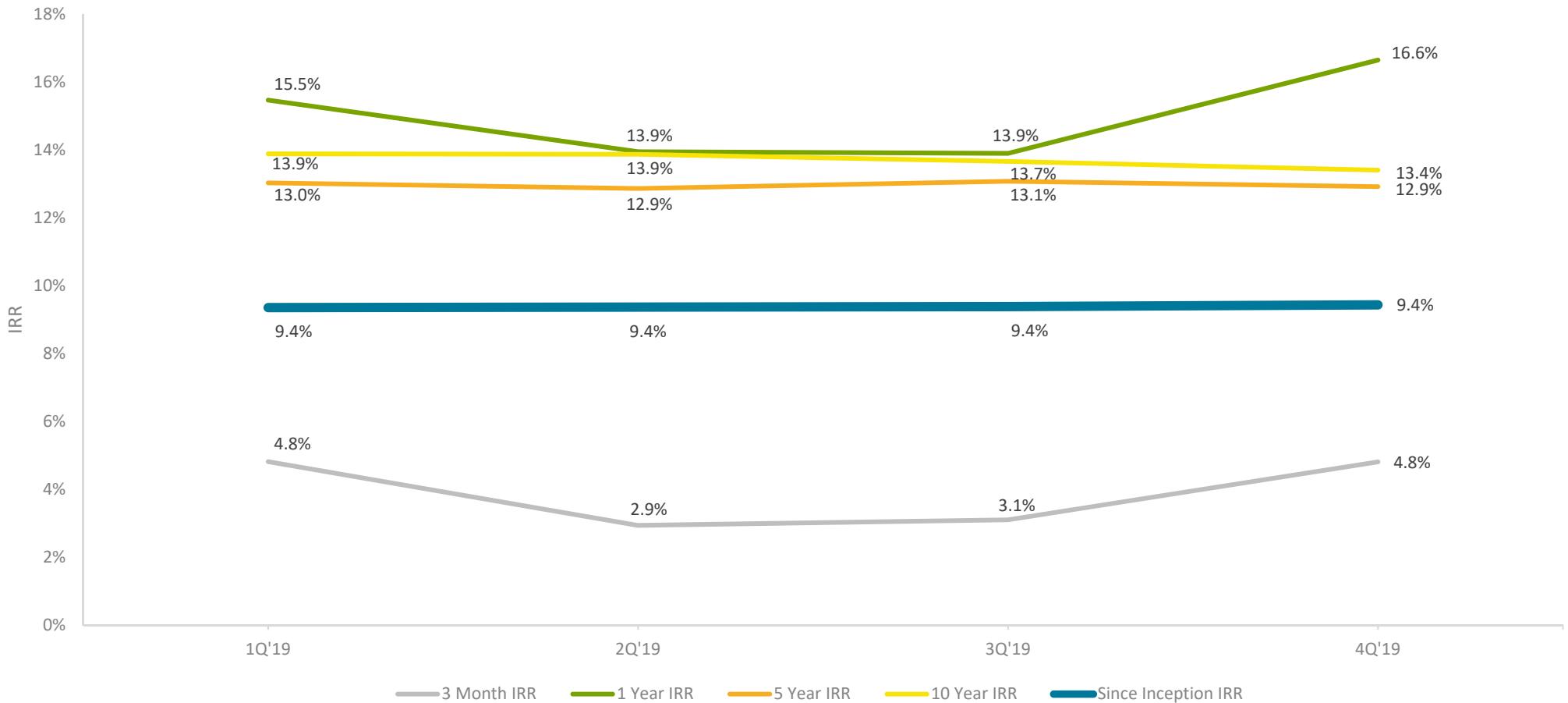
<u>Cash Flow - 4Q 2019</u>		
	<u>Quarter Ended</u>	<u>12 Months Ended</u>
Contributions	\$99.0	\$461.2
Distributions	106.5	631.6
<b>Net Cash Flow</b>	<b>\$ 7.5</b>	<b>\$ 170.4</b>

<u>Portfolio Construction - 4Q 2019</u>		
	<u># Managers</u>	<u># Funds</u>
Active - Beginning of Quarter	44	82
Commitments Closed	3	5
Liquidations	-1	-1
<b>Active - End of Quarter</b>	<b>46</b>	<b>86</b>

<sup>1</sup>The Benchmark is defined as The Russell 3000 index + 250 bps. Benchmark returns less than 1 year are annualized. Benchmark was changed from the S&P500 + 500 bps, effective May 31, 2019.

Past performance is not necessarily indicative of future results and there can be no assurance that the fund will achieve comparable results or avoid substantial losses.

## PIF Total Portfolio Periodized Returns for Trailing Four Quarters



# Capital Account Change

## Quarterly Portfolio Activity



**Past performance is not necessarily indicative of future results.**

No assurance can be given that the performance of unrealized investments has not significantly changed from the date the performance reflected herein was determined.

# Fiscal Year 2020 Commitments



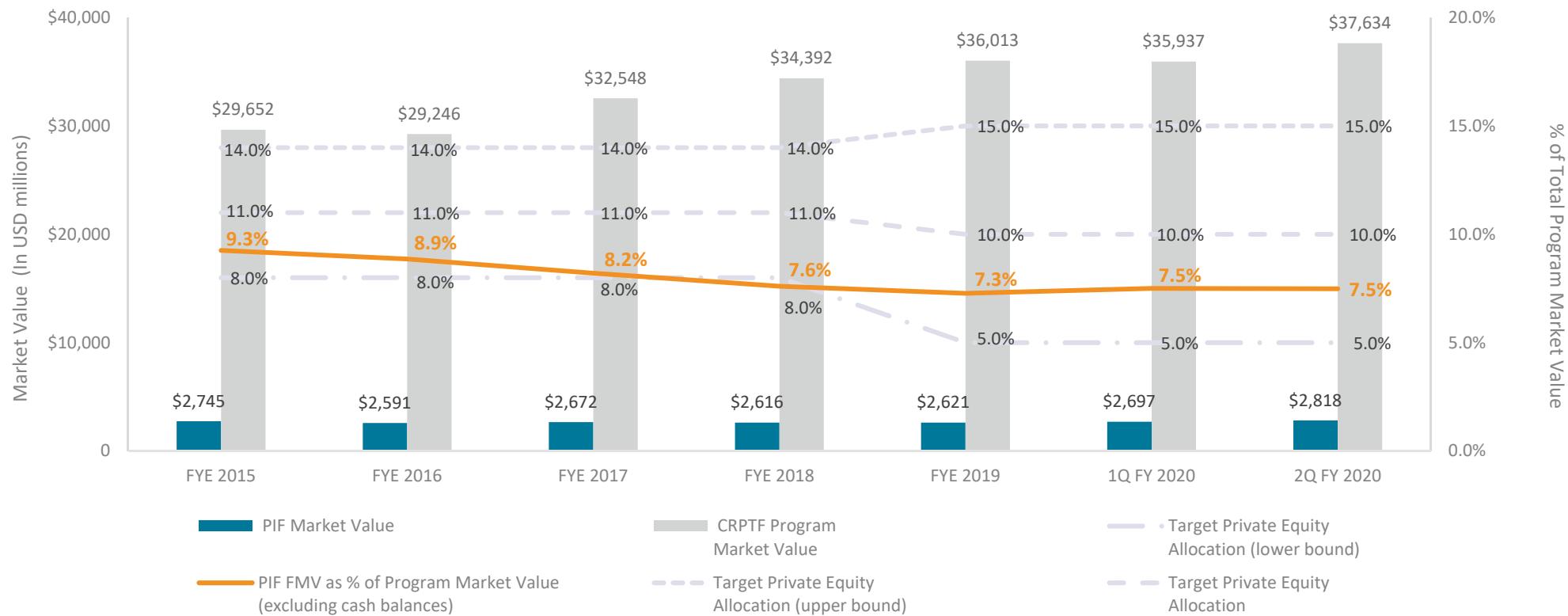
*In USD millions.*

<b><u>Closed Through 2Q FY 2020</u></b>					
<b>Investment</b>	<b>Fiscal Quarter Closed</b>	<b>Vintage Year</b>	<b>Sub-Strategy</b>	<b>Geographic Focus</b>	<b>Committed Capital</b>
Vistria Fund III, L.P.	Q1FY'20	2019	Small Buyout	North America	\$75.0
Dover Street X, L.P.	Q2FY'20	2019	Secondaries	Global	100.0
Georgian Partners Growth Fund V, L.P.	Q2FY'20	2019	Growth Equity	North America	75.0
Hollyport Secondary Opportunities VII, L.P.	Q2FY'20	2019	Secondaries	Global	75.0
JFL Equity Investors V, L.P.	Q2FY'20	2019	Middle-Market Buyout	North America	100.0
Secondary Overflow Fund IV, L.P.	Q2FY'20	2019	Secondaries	Global	50.0
<b>Total</b>					<b>\$475.0</b>
<b>Fiscal Year 2020 Strategic Plan Commitment Pacing Target:</b>					<b>\$950.0</b>

Closed commitments in a foreign currency are converted into US Dollars using exchange rate as of the report date.

# PIF Market Value vs. Asset Allocation Policy

CRPTF Private Equity Market Value as % of Program Market Value



# Connecticut Horizon Fund & In-State Program



## Horizon Fund

- Through December 31, 2019, the PIF had committed \$240.0 million to CHF designated private equity mandates since inception.
- Since inception through December 31, 2019, the PIF's CHF designated investments generated a Net IRR of 7.6%.

As of December 31, 2019. In USD millions.	Vintage Year	Commitment Up To	Contributed Capital	Unfunded Commitment	Distributed Capital	Exposure	Market Value	TVPI	Net IRR
CT Horizon Legacy Fund, L.P.	2008	\$15.0	\$13.7	\$2.7	\$6.7	\$6.8	\$4.2	0.8x	(4.1%)
M2 - Connecticut Emerging Private Equity Fund of Funds, L.P.	2008	105.0	113.0	6.7	91.6	72.2	65.5	1.4x	7.8%
Nutmeg Opportunities Fund L.P. CT-EM	2010	35.0	17.0	7.8	-	44.6	36.8	2.2x	13.3%
Nutmeg Opportunities Fund II, LLC - EM	2017	35.0	18.2	18.1	-	40.2	22.1	1.2x	11.2%
Freeman CT Horizon Investment Fund, LLC	2019	50.0	5.1	45.3	-	49.9	4.6	0.9x	NM
<b>Total</b>		<b>\$240.0</b>	<b>\$167.0</b>	<b>\$80.4</b>	<b>\$98.3</b>	<b>\$213.6</b>	<b>\$133.2</b>	<b>1.4x</b>	<b>7.6%</b>

## In-State Program

- Through December 31, 2019, the PIF had committed \$145.0 million to In-State designated private equity mandates.
- Since inception through December 31, 2019, the PIF's In-State investments generated a Net IRR of 15.0%.

As of December 31, 2019. In USD millions.	Vintage Year	Commitment Up To	Contributed Capital	Unfunded Commitment	Distributed Capital	Exposure	Market Value	TVPI	Net IRR
Connecticut Growth Capital, LLC	2016	\$50.0	\$34.1	\$18.5	\$20.7	\$43.0	\$24.5	1.3x	17.1%
Constitution Fund V, LLC - Series B	2017	20.0	14.8	5.2	-	22.1	16.9	1.1x	8.9%
Nutmeg Opportunities Fund II, LLC – CT-Direct Investment	2017	50.0	-	50.0	-	50.0	-	0.0x	NM
Constitution Fund V, LLC - Series D	2019	25.0	1.5	23.5	-	25.0	1.5	1.0x	NM
<b>Total</b>		<b>\$145.0</b>	<b>\$50.4</b>	<b>\$97.1</b>	<b>\$20.7</b>	<b>\$140.0</b>	<b>\$42.9</b>	<b>1.3x</b>	<b>15.0%</b>

Note: in August 2018, the commitment for Connecticut Growth Capital, LLC was reduced by US\$25.0 million resulting in an updated commitment of US\$50.0 million.

An IRR is not meaningful in the early years of a partnership's life given the J-curve effect. The J-curve refers to the shape of the curve that illustrates a fund's performance over time. During the initial years of a fund's life, due to illiquidity, stagnant valuations, fees and expenses, a fund's performance tends to be negative (the bottom of the "J"). Eventually, as portfolio companies are realized or increase in value and fees become a smaller percentage of overall contributions, fund performance improves and investors' returns move up the "J" shaped curve. Performance for investments held less than two years is not considered meaningful. TVPI and Net IRR will be displayed two years following the first capital call. TVPI is the ratio of Distributed Capital plus Market Value to Contributed Capital. Net IRR is defined as the annualized, compound rate of return using daily draws, distributions and Market Value as of the Report Date, net of fees and expenses, including late closing interest.

IRR and TVPI for certain vehicles may have been impacted by Stepstone's or the underlying GPs' use of subscription-backed credit facilities by such vehicles. Reinvested/recycled amounts increase contributed capital.

Market Value is defined as the investor's value as reported by the fund's manager.

Exposure is defined as the sum of an investor's Market Value plus Unfunded Commitment.

Data compiled from cash flow notices and quarterly financial statements provided by fund managers.

**Past performance is not necessarily indicative of future results** and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.

## II. Portfolio Review

# Portfolio Summary



As of December 31, 2019. In USD millions.

Group	Number of Funds	Committed Capital	Contributed Capital	Unfunded Commitment	Distributed Capital	Market Value	Exposure	DPI	TVPI	Net IRR
<b>By Vehicle</b>										
Fund of Funds	20	2,350.2	1,993.7	337.4	2,902.5	852.4	1,189.9	1.5x	1.9x	18.0%
Primary	104	7,045.1	6,106.9	1,301.8	6,995.2	1,880.1	3,181.9	1.1x	1.5x	7.0%
Secondary Fund of Funds	8	705.0	381.4	333.3	393.9	85.8	419.1	1.0x	1.3x	5.7%
<b>Total</b>	<b>132</b>	<b>\$10,100.3</b>	<b>\$8,482.0</b>	<b>\$1,972.6</b>	<b>\$10,291.7</b>	<b>\$2,818.3</b>	<b>\$4,790.9</b>	<b>1.2x</b>	<b>1.5x</b>	<b>9.4%</b>
<b>By Strategy</b>										
Buyout	67	4,789.8	4,077.1	911.6	5,158.7	1,413.9	2,325.4	1.3x	1.6x	9.5%
Fund of Funds	8	455.0	240.7	218.8	139.9	210.2	429.1	0.6x	1.5x	9.2%
Growth Equity	2	125.0	16.5	108.8	0.0	23.0	131.8	0.0x	1.4x	34.0%
Multi-Strategy	5	390.2	409.0	29.2	500.0	9.9	39.1	1.2x	1.2x	3.9%
Special Situations	30	2,204.3	1,846.8	539.8	1,895.8	527.1	1,066.9	1.0x	1.3x	6.3%
Venture Capital	20	2,136.0	1,891.8	164.4	2,597.2	634.2	798.5	1.4x	1.7x	12.2%
<b>Total</b>	<b>132</b>	<b>\$10,100.3</b>	<b>\$8,482.0</b>	<b>\$1,972.6</b>	<b>\$10,291.7</b>	<b>\$2,818.3</b>	<b>\$4,790.9</b>	<b>1.2x</b>	<b>1.5x</b>	<b>9.4%</b>
<b>By Age</b>										
Pre-2011 Vintages	80	6,489.5	6,430.7	159.0	9,214.3	871.5	1,030.4	1.4x	1.6x	9.0%
Vintages 2011-2019	52	3,610.8	2,051.4	1,813.6	1,077.3	1,946.9	3,760.5	0.5x	1.5x	16.8%
<b>Total</b>	<b>132</b>	<b>\$10,100.3</b>	<b>\$8,482.0</b>	<b>\$1,972.6</b>	<b>\$10,291.7</b>	<b>\$2,818.3</b>	<b>\$4,790.9</b>	<b>1.2x</b>	<b>1.5x</b>	<b>9.4%</b>

Market Value is defined as the investor's value as reported by the fund's manager.

Exposure is defined as the sum of an investor's Market Value plus Unfunded Commitment.

DPI is the ratio of Distributed Capital to Contributed Capital.

TVPI is the ratio of Distributed Capital plus Market Value to Contributed Capital.

Net IRR is defined as the annualized, compound rate of return using daily draws, distributions and Market Value as of the Report Date, net of fees and expenses, including late closing interest.

Results include fully liquidated investments (if applicable).

Commitments made in a foreign currency have been converted into US Dollars using an exchange rate as of the Report Date.

Returns calculated for funds in the early years of their lives are not particularly meaningful given the J-curve effect. During these early years, due to illiquidity, stagnant valuations, fees and expenses, fund performance tends to be negative (the bottom of the "J").

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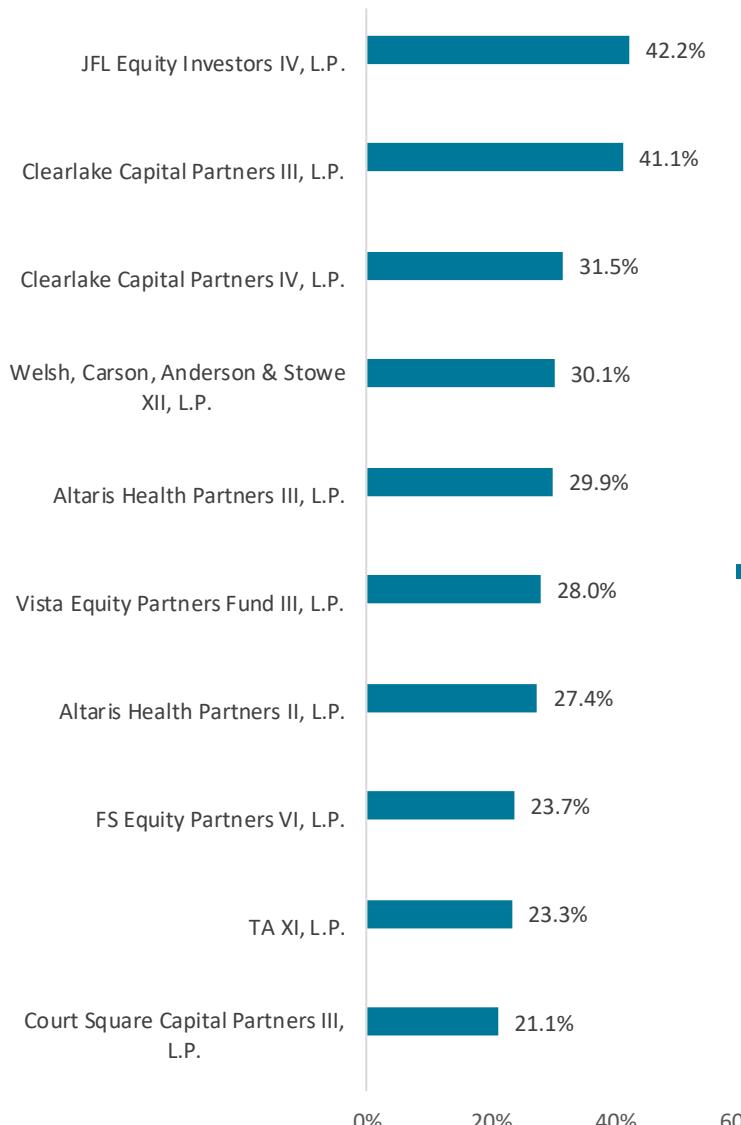
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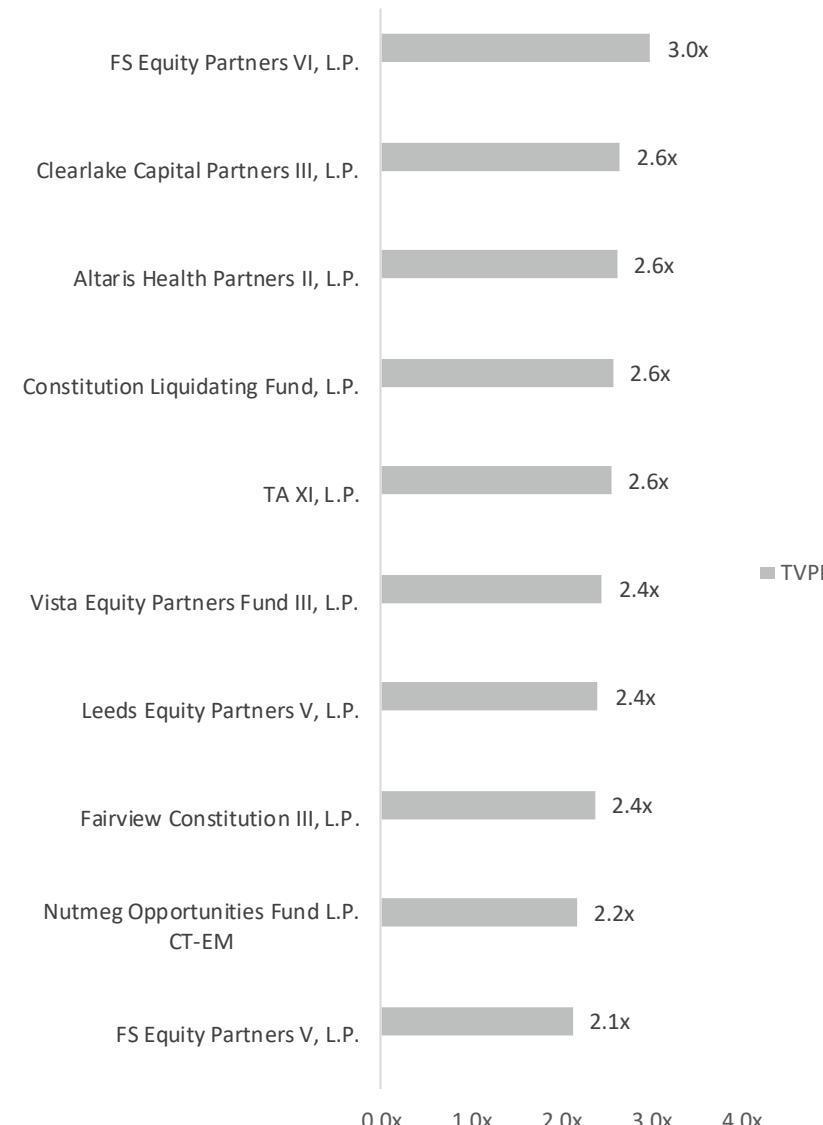
# Top Performing Investments

The following charts depict the top ten performing active investments in the Portfolio by IRR and TVPI through December 31, 2019.

Top 10 Active Performers by IRR

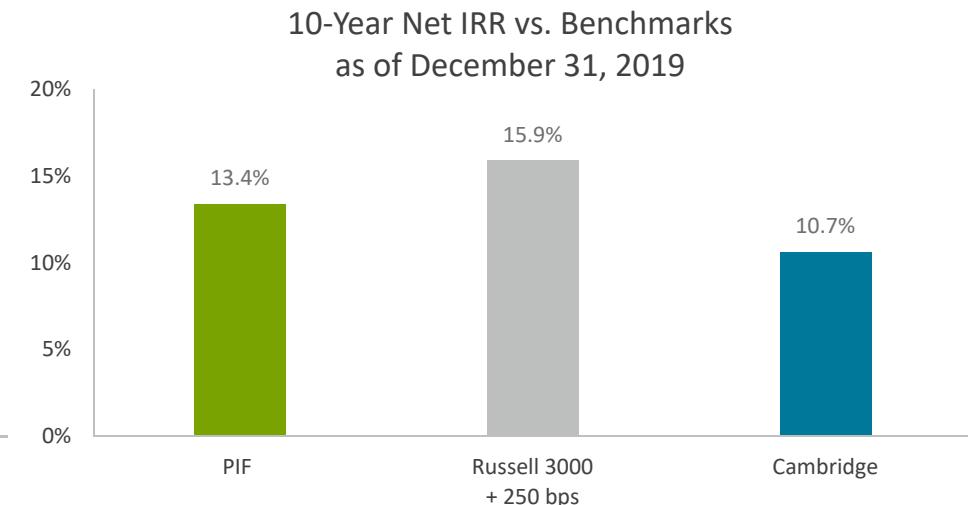
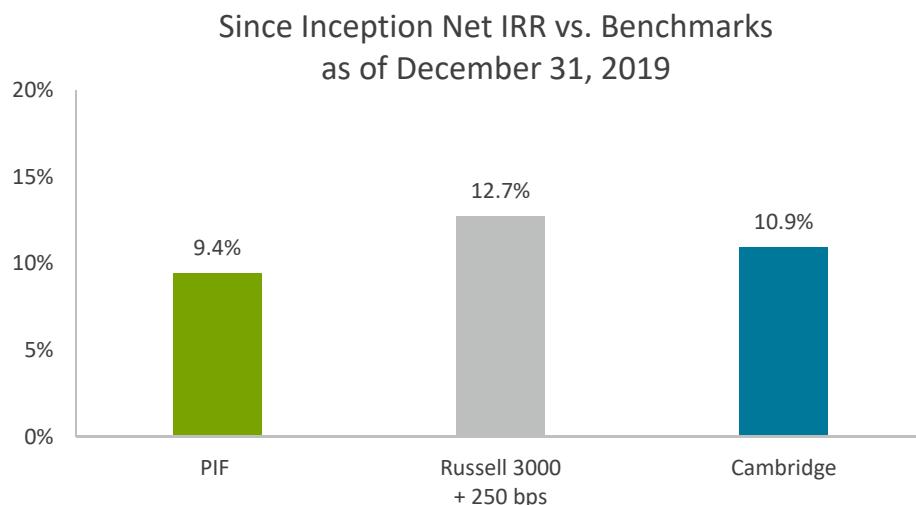


Top 10 Active Performers by TVPI



# Performance versus Benchmarks: Total PIF Program

- Since inception to December 31, 2019, the total PIF program (including the Connecticut Horizon Fund and In-State Programs) generated a Net IRR of 9.4%. Over this time period, PIF underperformed relative to the Russell 3000 + 250 bps by 327 basis points.
- For the 10 years ending December 31, 2019, the total PIF program generated a Net IRR of 13.4%. Over this time period, PIF underperformed relative to the Russell 3000 + 250 bps by 251 basis points.



Returns are calculated using the internal rate of return methodology and are after the deduction of underlying fund manager fees and expenses.

The Benchmark is defined as The Russell 3000 index + 250 bps. Benchmark was changed from the S&P500 (10-year annualized return) + 500 bps, effective May 31, 2019.

Since Inception Cambridge Benchmark: All Private Equity, Average IRR Net to LPs for Vintages 1987-2019, as of December 31, 2019. This benchmark data is continuously updated and therefore subject to change.

10-Year Cambridge Benchmark: All Private Equity, Pooled IRR, for Vintages 1987-2019, as of December 31, 2019. This benchmark data is continuously updated and therefore subject to change.

Comparisons between private equity and public equity returns need to be viewed with caution as private equity is an illiquid asset class, whereas publicly listed securities are marked-to-market daily. Despite quarterly mark-to-market of private holdings, valuations are believed to be incorporated at a slower pace than the public markets.

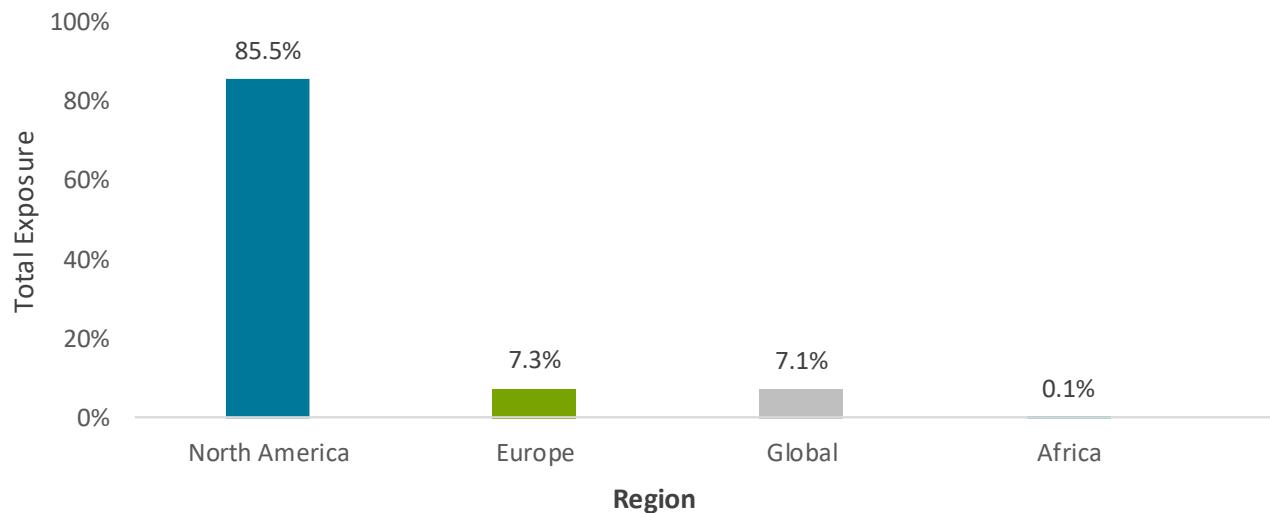
The referenced indices are shown for general market comparisons and are not meant to represent any particular fund. An investor cannot directly invest in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented.

**Past performance is not necessarily indicative of future results** and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.

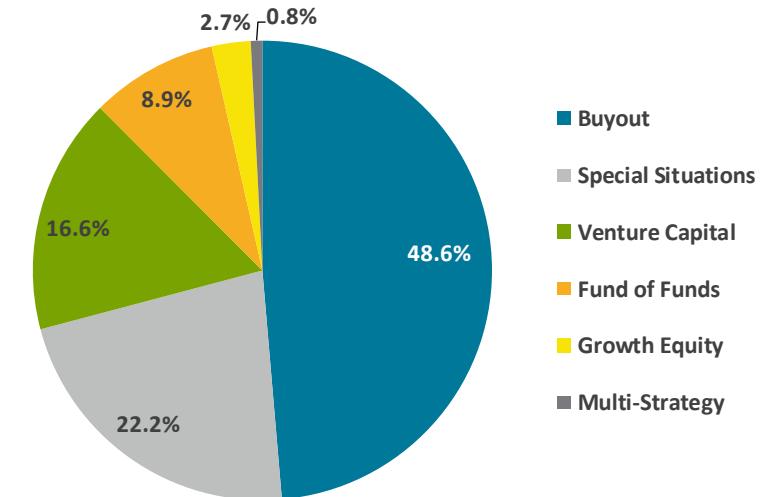
# Portfolio Diversification

- As of December 31, 2019, the Portfolio is primarily concentrated in funds employing Buyout strategies, which represent 48.6% of total exposure as of quarter-end. In terms of geographic focus, the Portfolio is primarily concentrated in Funds targeting investments in North America, which accounted for 85.5% of total exposure as of quarter-end.
- Approximately 41.2% of total exposure is attributable to Funds with commitments made more than five years ago while approximately 41.7% of total exposure is attributable to commitments made less than three years ago.

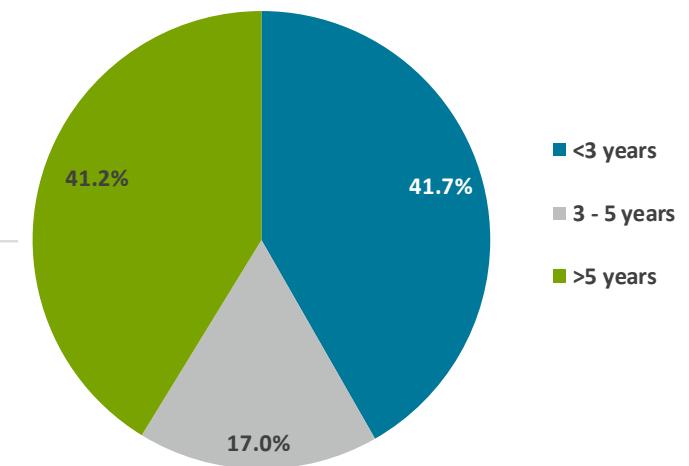
## Portfolio Diversification by Region



## Portfolio Diversification by Strategy



## Portfolio Diversification by Age

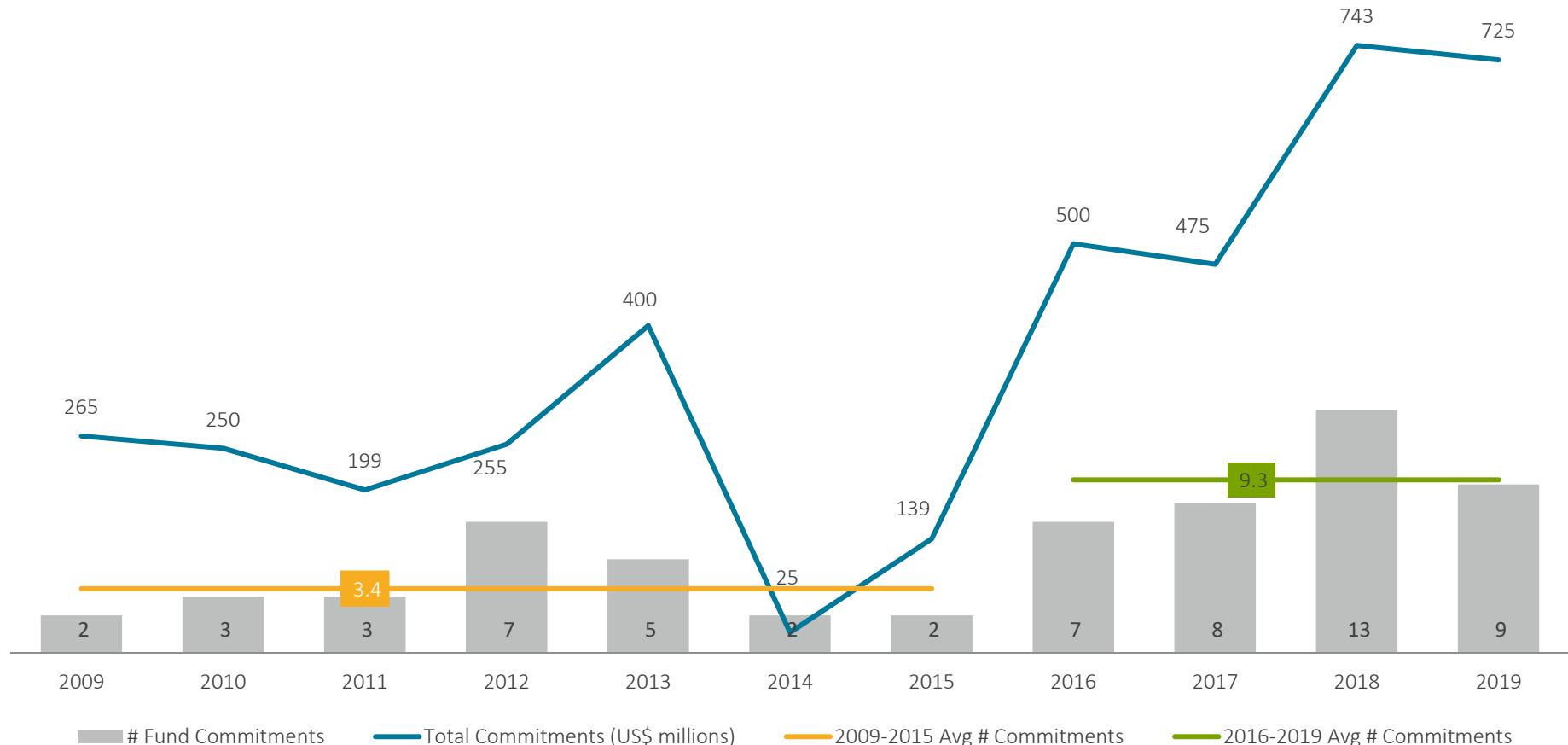


Global funds are those that target a geographically diverse set of investments and therefore do not confine to one geographic region.

As of December 31, 2019, the Portfolio is also invested in funds with exposure to investments located in Asia. Altogether, these investments account for less than 0.1% of aggregate Portfolio exposure.

# Calendar Year Commitments

## Total Dollar and Number of Fund Commitments per Calendar Year

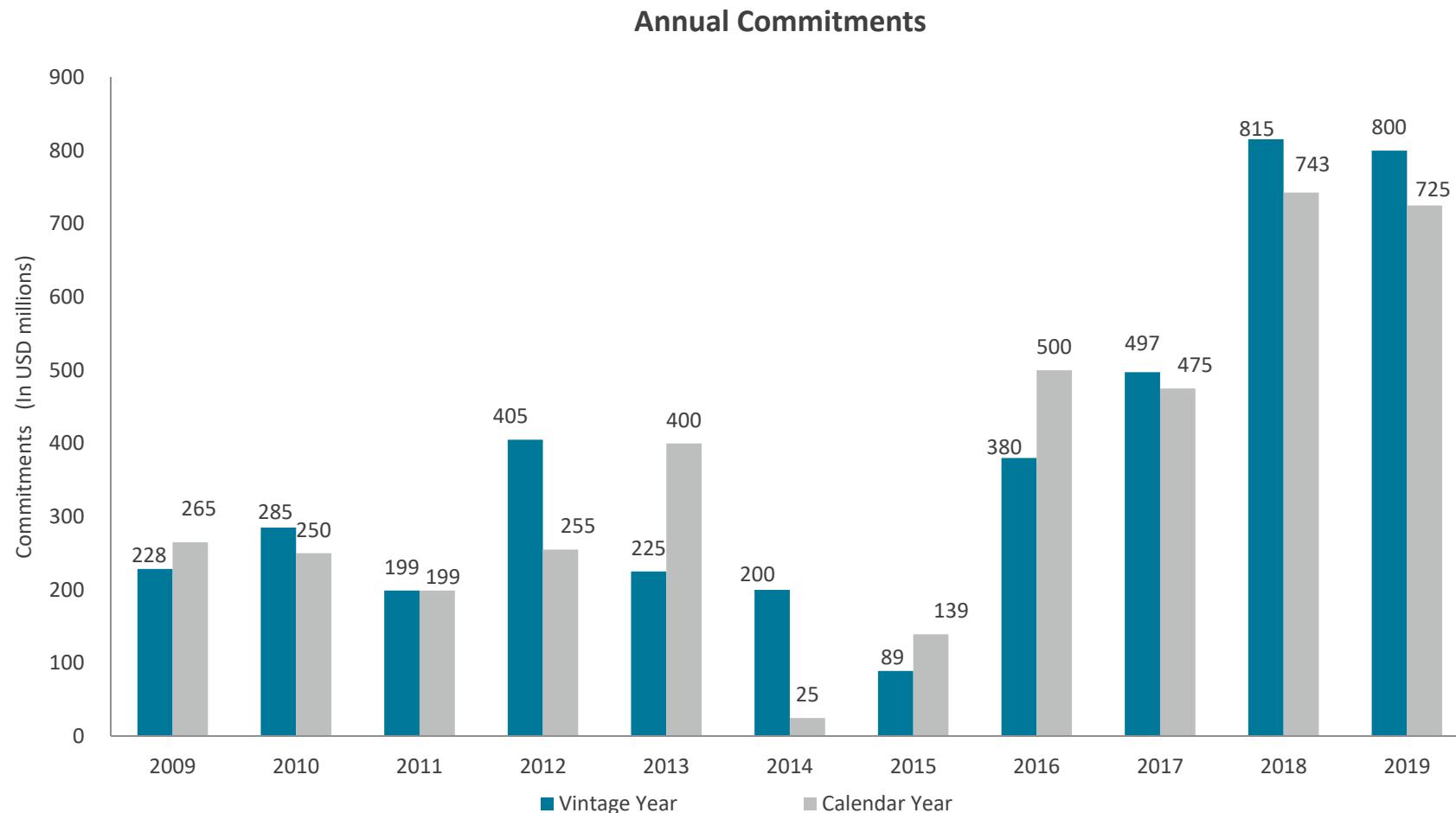


Calendar Year represents the year in which a commitment to a fund formally closed.

Closed commitments in a foreign currency are converted into US dollars using exchange rate as of commitment date, if applicable.

Commitments were compiled through the Report Date.

# Annual Commitments



Vintage Year is defined as the earlier of the year in which investors first contribute capital to a fund or the year a fund commences operating activity. If neither first contribution or first investment has occurred as of Report Date, Commitment Year is used as a preliminary Vintage Year.

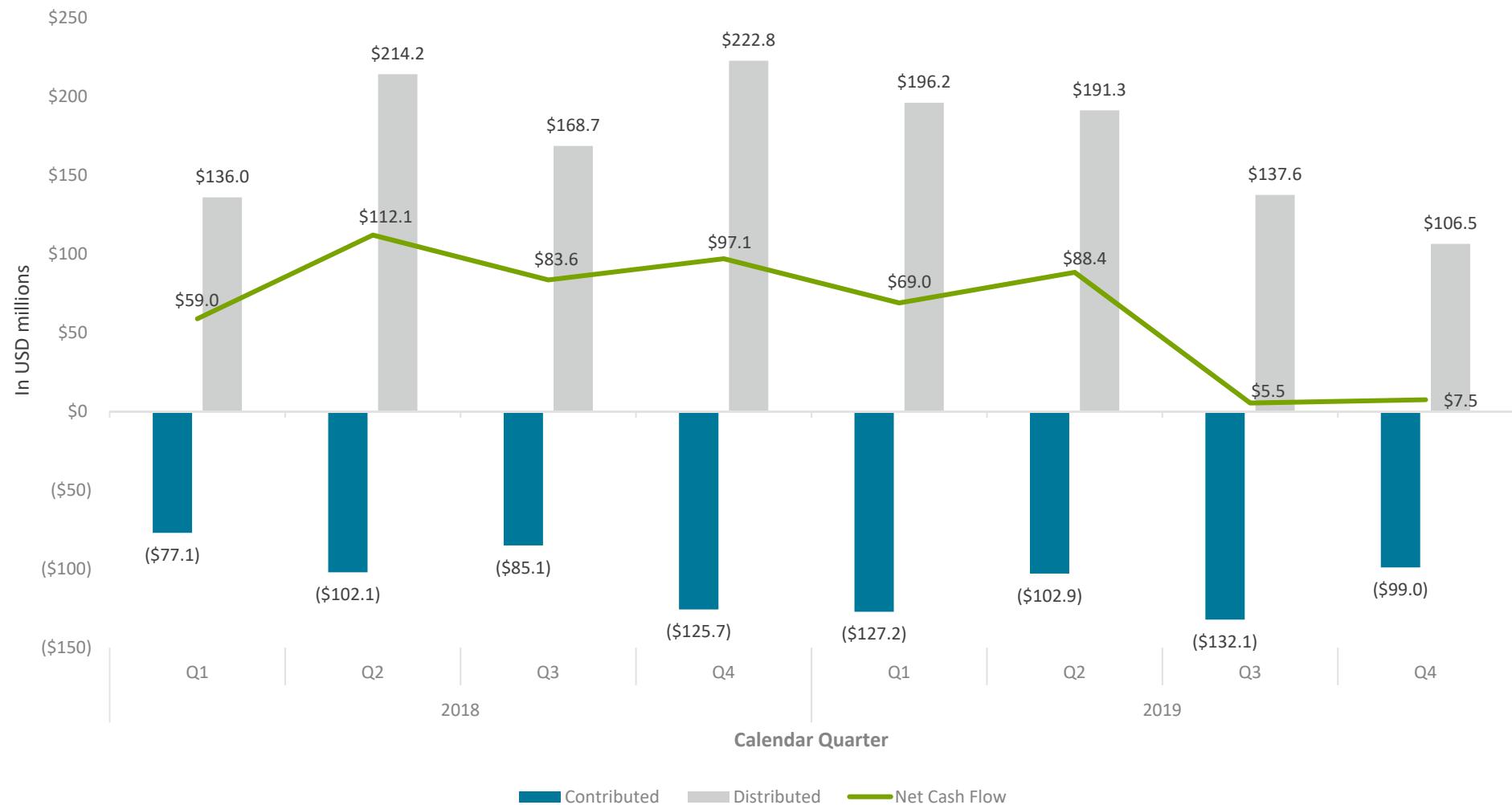
Calendar Year represents the year in which a commitment to a fund formally closed.

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# Quarterly Cash Flow

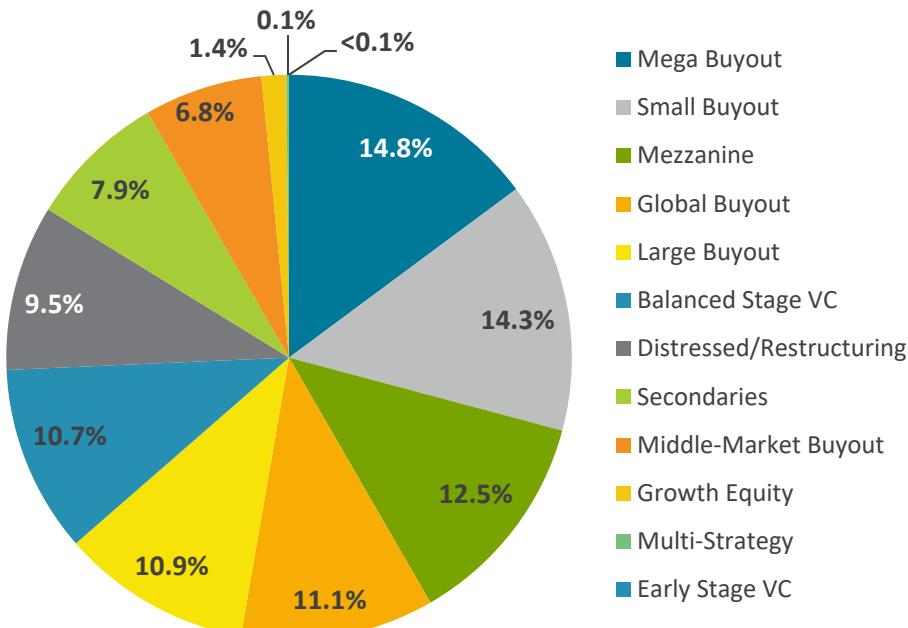
Q4 2019 net cash inflow as of December 31, 2019 was 37.8% higher than Q3 2019 net cash inflow. Quarterly distributions were 22.6% lower than the prior quarter. Quarterly net cash inflow was 92.3% lower than the fourth quarter of 2018.



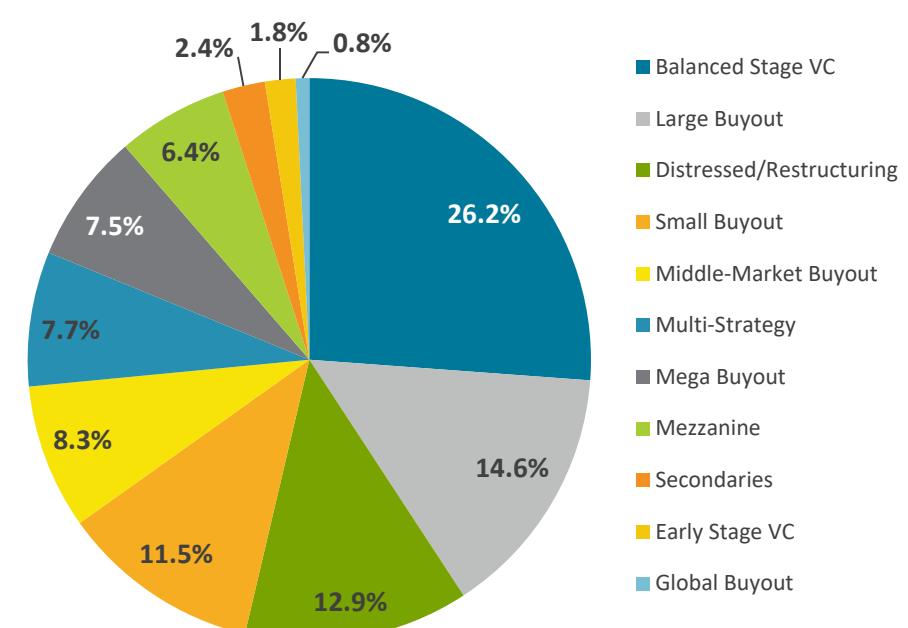
# Annual Cash Flow

During 2019, Mega Buyout and Small Buyout funds were the most active in terms of capital calls, drawing \$134.5 million, or 29.2%, of YTD 2019 contributed capital. Balanced Stage VC and Large Buyout funds were the most active in terms of distributions, together distributing \$257.5 million, or 40.8%, of total distributed capital in 2019.

## YTD Contributions by Sub-Strategy

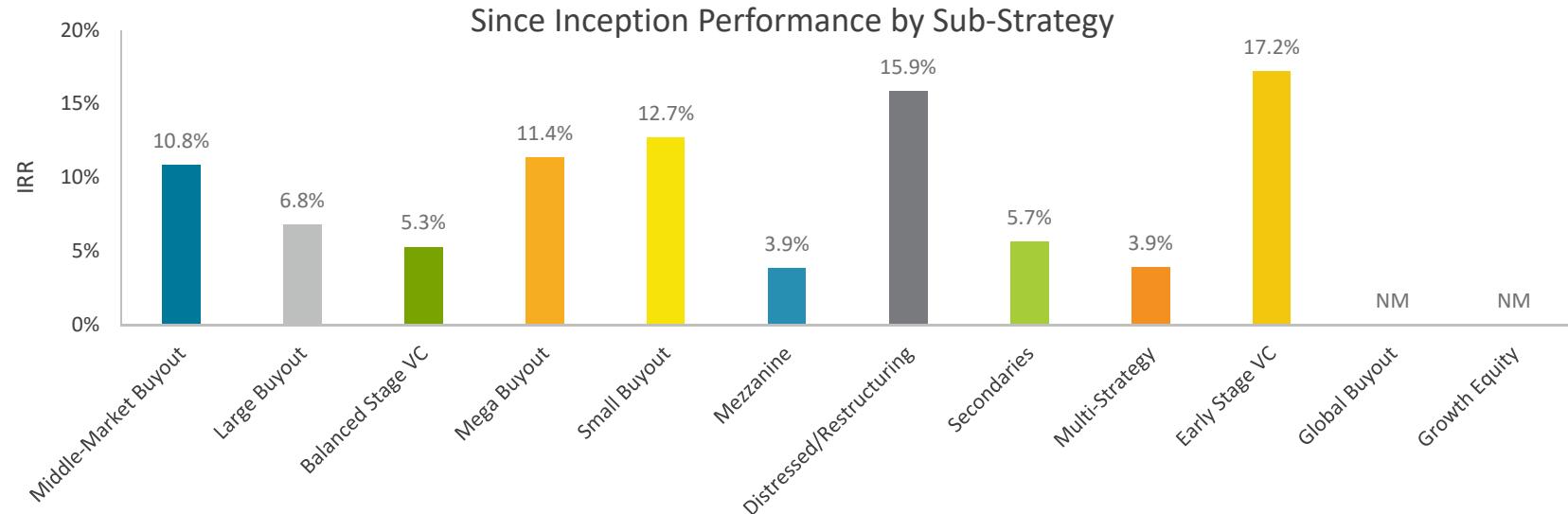
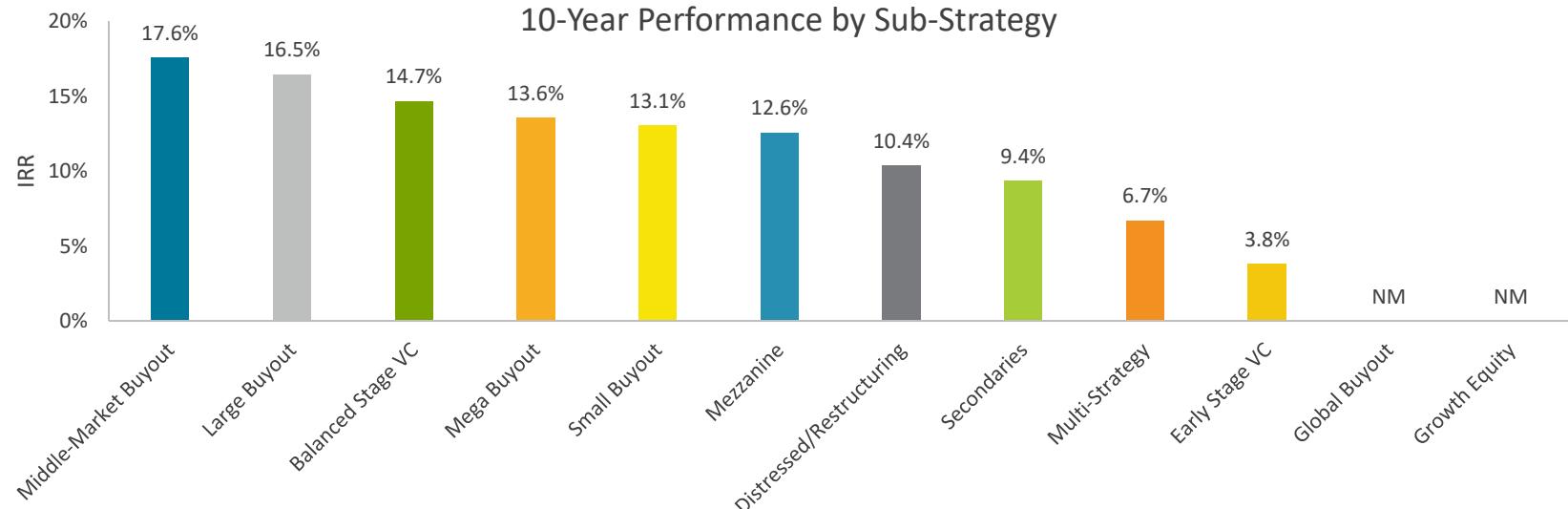


## YTD Distributions by Sub-Strategy



# Performance by Sub-Strategy

- For the ten years ending December 31, 2019, the returns generated within Middle-Market Buyout funds have exceeded other strategies.
- Since inception, Early Stage Venture Capital (“VC”) and Distressed funds have performed well above many other strategies. VC is a strategy that typically carries significant risk and PIF’s outperformance has been primarily driven by Constitution Liquidating Fund (20.0% net IRR). Clearlake Capital Partners III & IV continue to deliver strong performance for Distressed funds.



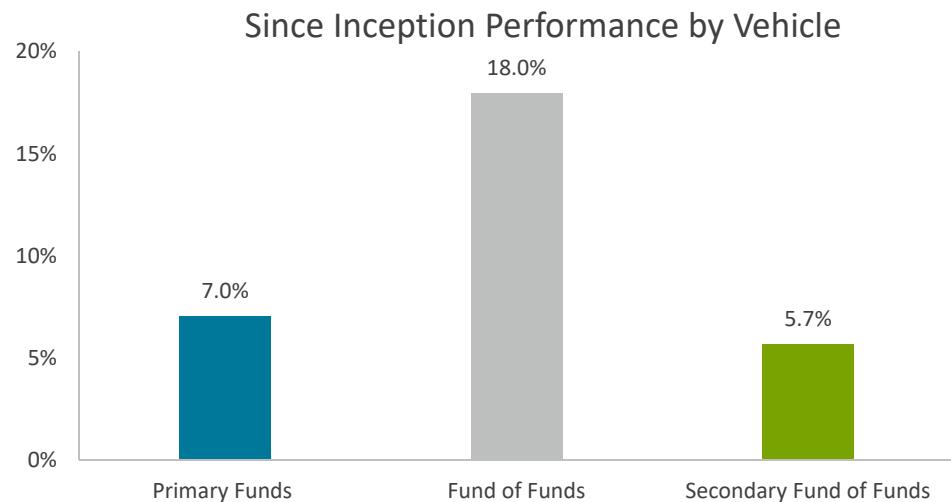
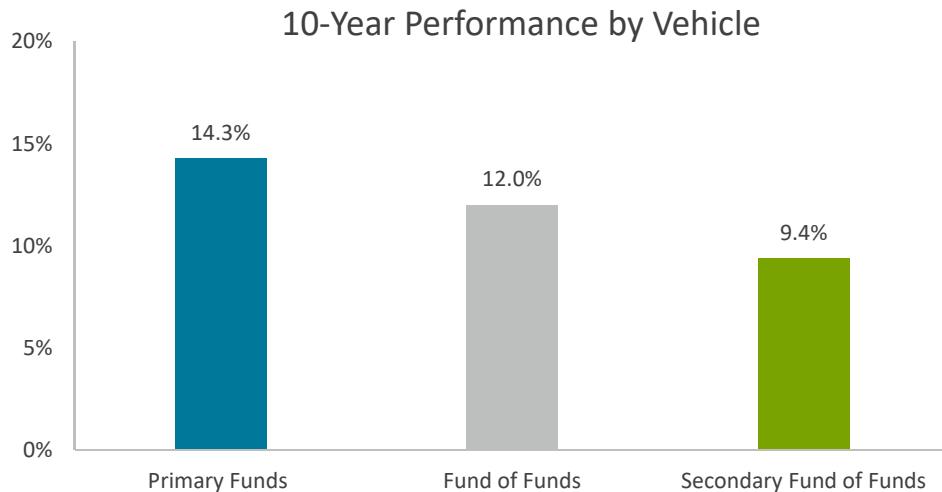
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IRR and TVPI for certain vehicles may have been impacted by Stepstone's or the underlying GPs' use of subscription-backed credit facilities by such vehicles. Reinvested/recycled amounts increase contributed capital.

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# Performance by Vehicle

- For the ten years ending December 31, 2019, returns generated within Primary funds exceeded other vehicle types.
- Since inception, Fund-of-Funds have performed better than other vehicles.
- The disparity between Fund-of-Funds performance during the last ten years and since inception is driven primarily by the Portfolio's commitment to Constitution Liquidating Fund, a 1987 vintage-year fund, which generated an IRR of 20.0% as of December 31, 2019. Constitution Liquidating Fund also accounts for 36.4% of the total value of PIF Funds-of-Funds investments made since inception.



# Benchmark Summary

- The below presentation provides multiple period returns of the portfolio compared to the benchmark.
- Since inception the portfolio has underperformed the benchmark by 327 bps.
- For the ten years ending December 31, 2019, the portfolio has underperformed the benchmark by 251 bps.

*As of December 31, 2019.*

Allocations	1-Year	3-Year	5-Year	10-Year	Since Inception
Aggregate Portfolio	16.6%	15.3%	12.9%	13.4%	9.4%
Russell 3000 + 250 bps	33.5%	17.1%	13.7%	15.9%	12.7%
<b>Relative Performance</b>	<b>(16.9%)</b>	<b>(1.8%)</b>	<b>(0.8%)</b>	<b>(2.5%)</b>	<b>(3.3%)</b>

Russell 3000 Benchmark data is as of 1994 through December 31, 2019 + 250 basis points. Benchmark was changed from the S&P500 (10-year annualized return) + 500 bps, effective May 31, 2019.

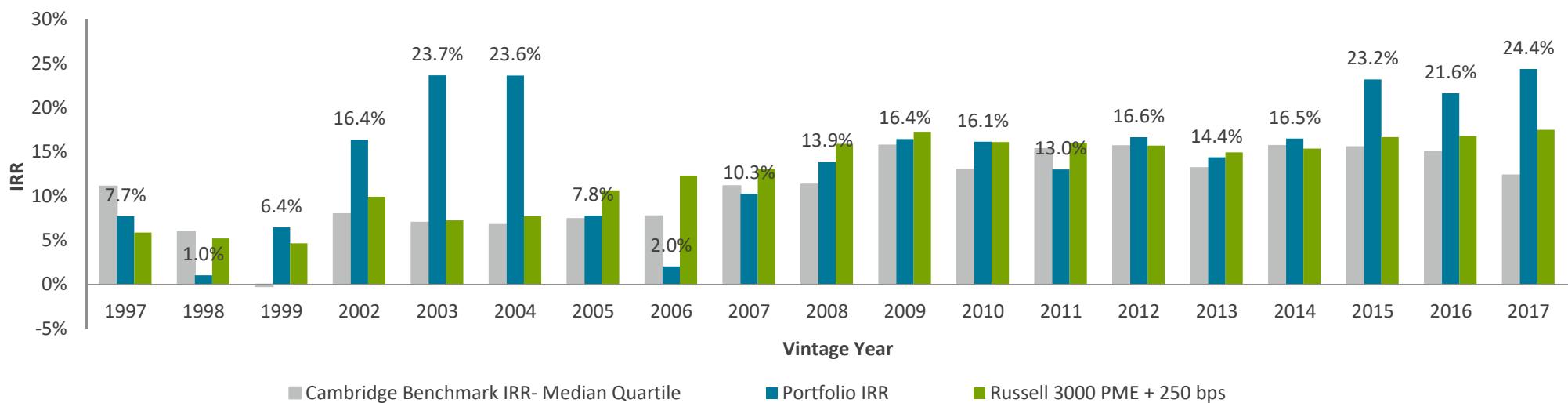
Net IRR is defined as the annualized, compound rate of return using daily draws, distributions and Market Value as of the Report Date, net of fees and expenses, including late closing interest.

The referenced indices are shown for general market comparisons and are not meant to represent any particular fund. An investor cannot directly invest in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented.

**Past performance is not necessarily indicative of future results** and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.

# Analysis by Vintage Year

- The below presentation provides the since inception returns of the portfolio by vintage year compared to both the Cambridge median IRR benchmark as well as the Russel 3000 + 250 bps PME+ returns.
- Vintage year 2004 has the highest relative performance exceeding the Cambridge Associates benchmark by 1,688 bps.
- Vintage year 2006 has the lowest relative performance under performing the Cambridge Associates benchmark by 569 bps.



Cambridge Associates data, U.S. All Private Equity returns as of December 31, 2019.

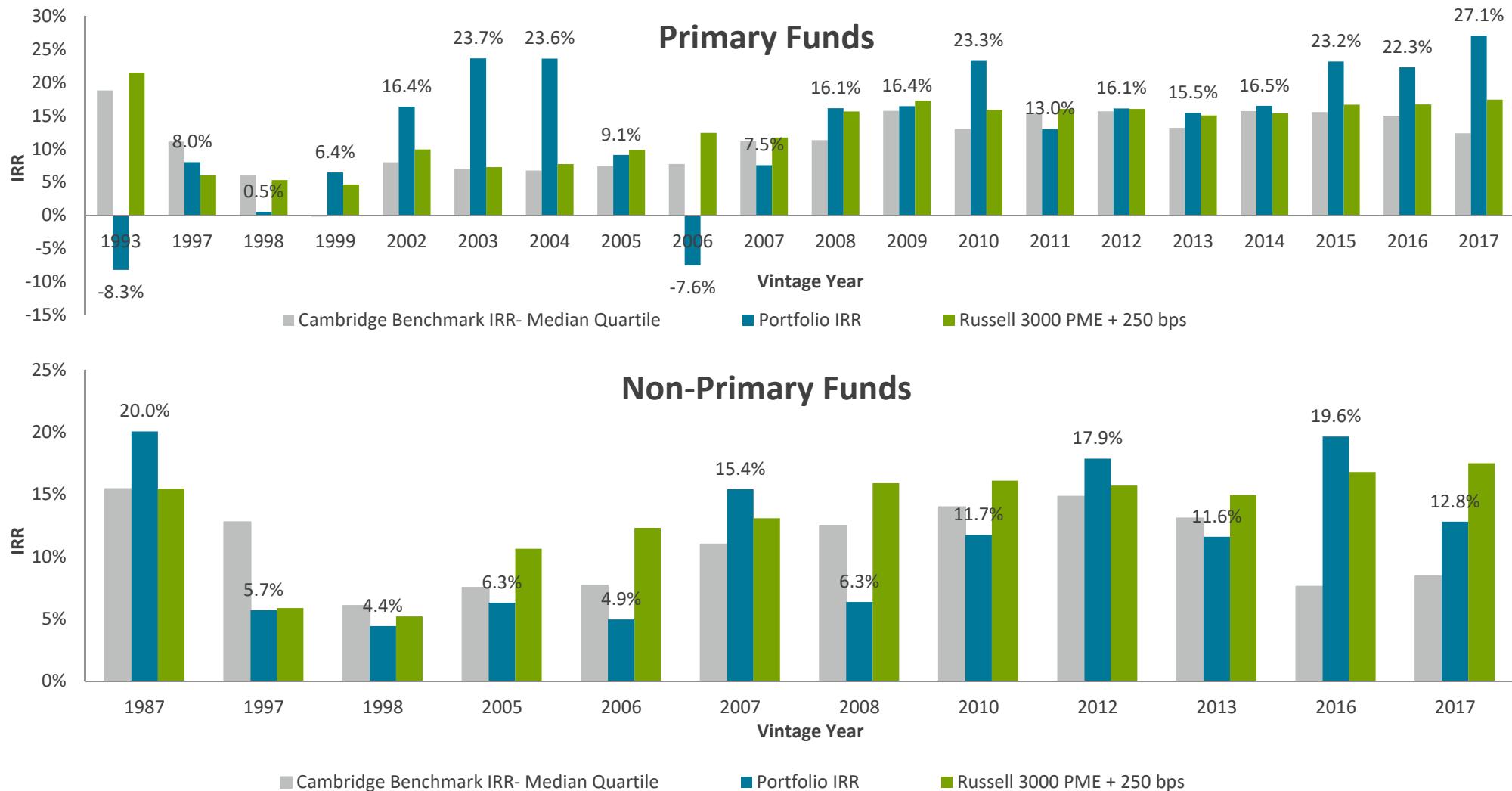
Russell 3000 PME data is as of December 31, 2019. PME+ was changed from S&P500 + 500 bps to Russel 3000 + 250 bps effective May 31, 2019.

Net IRR is defined as the annualized, compound rate of return using daily draws, distributions and Market Value as of the Report Date, net of fees and expenses, including late closing interest.

The referenced indices are shown for general market comparisons and are not meant to represent any particular fund. An investor cannot directly invest in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented.

**Past performance is not necessarily indicative of future results** and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.

# Analysis by Vintage Year



Primary Funds are private equity funds that acquire ownership interests directly in operating companies. Non-Primary Funds are private equity funds that invest in other funds or make secondary market purchases of interests in private equity funds and/or operating companies.

Cambridge Associates data, U.S. All Private Equity returns as of December 31, 2019. Cambridge Associates data, U.S. Secondary Funds and U.S. Fund of Funds returns as of September 30, 2019.

Russell 3000 PME data is as of December 31, 2019. PME+ was changed from S&P500 + 500 bps to Russel 3000 + 250 bps effective May 31, 2019.

The benchmarks represented in the Non-Primary Funds chart are not considered to be appropriate for fund-of-funds that commit capital to underlying funds over multiple vintage years.

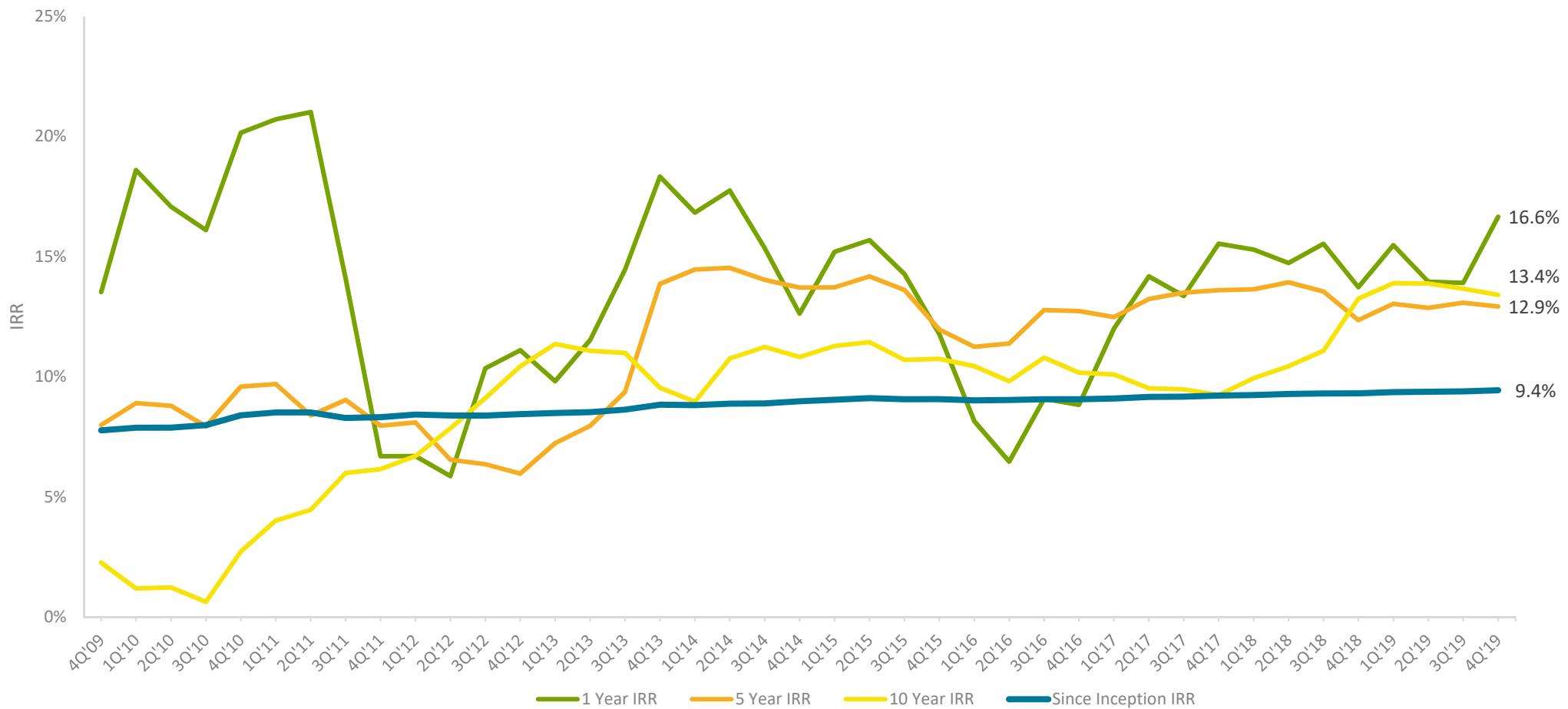
Insufficient non-primary benchmarking data available to construct a valid and reliable benchmark for vintage years 1987 and 1998.

The analysis excludes the most recent vintage years, as fund performance is deemed not yet meaningful (NM).

The referenced indices are shown for general market comparisons and are not meant to represent any particular fund. An investor cannot directly invest in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented.

**Past performance is not necessarily indicative of future results** and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.

## PIF Total Portfolio Periodized Returns for Trailing 10 years



Past performance is not necessarily indicative of future results and there can be no assurance that the fund will achieve comparable results or avoid substantial losses.

# Investment Performance by Sub Strategy – Active Funds



As of December 31, 2019. In USD millions.

Investment	Vintage Year	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Exposure	Total Value	Gain/(Loss)	Unfunded Commitment	TVPI	TVPI Quartile	IRR	IRR Quartile
BC European Capital X	2017	92.2	60.4	1.2	69.1	101.8	76.7	9.9	32.7	NM	NM	NM	NM
EQT VIII, L.P.	2018	81.0	38.5	3.7	38.5	84.6	46.1	3.6	46.2	NM	NM	NM	NM
<b>Global Buyout Total</b>		<b>173.3</b>	<b>98.9</b>	<b>4.9</b>	<b>107.6</b>	<b>186.4</b>	<b>122.8</b>	<b>13.5</b>	<b>78.8</b>	<b>NM</b>	<b>NM</b>		
Court Square Capital Partners II, L.P.	2007	94.0	91.7	163.3	8.7	11.9	172.1	80.4	3.2	1.9x	Second	12.8%	Second
Court Square Capital Partners III, L.P.	2013	50.0	52.9	32.5	52.8	56.4	85.3	32.4	3.6	1.6x	Second	21.1%	First
Gilbert Global Equity Partners, L.P.	1998	150.0	135.2	194.4	1.9	1.9	196.2	61.1	0.0	1.5x	Third	3.3%	Third
Siris Partners IV, L.P.	2018	50.0	23.1	0.0	26.8	53.7	26.8	3.7	26.9	NM	NM	NM	NM
TA XI, L.P.	2010	75.0	73.7	141.5	46.4	47.7	187.9	114.2	1.3	2.6x	First	23.3%	First
Vista Equity Partners Fund IV, L.P.	2012	75.0	80.2	101.9	49.5	62.0	151.3	71.1	12.5	1.9x	First	17.0%	Second
Welsh, Carson, Anderson & Stowe XI, L.P.	2009	100.0	100.0	129.5	34.3	34.3	163.8	63.8	0.0	1.6x	Third	12.0%	Third
Welsh, Carson, Anderson & Stowe XII, L.P.	2016	100.0	90.8	41.6	104.0	114.7	145.6	54.8	10.7	1.6x	First	30.1%	First
Welsh, Carson, Anderson & Stowe XIII, L.P.	2019	125.0	0.9	0.0	(2.5)	121.6	(2.5)	(3.4)	124.1	NM	NM	NM	NM
<b>Large Buyout Total</b>		<b>819.0</b>	<b>648.6</b>	<b>804.8</b>	<b>321.8</b>	<b>504.1</b>	<b>1,126.6</b>	<b>478.0</b>	<b>182.3</b>	<b>1.7x</b>		<b>9.0%</b>	
Apollo Investment Fund IX, L.P.	2018	125.0	23.4	0.2	20.2	121.8	20.5	(3.0)	101.6	NM	NM	NM	NM
Apollo Investment Fund VIII, L.P.	2014	125.0	116.0	53.6	107.0	127.2	160.7	44.7	20.2	1.4x	Third	11.9%	Third
KKR 2006 Fund, L.P.	2007	125.0	132.7	187.7	46.6	48.9	234.3	101.6	2.3	1.8x	Second	8.8%	Third
KKR Millennium Fund, L.P.	2002	100.0	103.0	212.8	0.1	0.1	212.9	110.0	0.0	2.1x	Second	16.4%	Third
Thomas H. Lee Equity Fund VI, L.P.	2007	100.0	105.8	159.1	7.8	12.6	166.9	61.2	4.8	1.6x	Second	7.7%	Third
Vista Equity Partners Fund VII, L.P.	2018	100.0	25.2	0.1	23.6	98.4	23.7	(1.6)	74.7	NM	NM	NM	NM
<b>Mega Buyout Total</b>		<b>775.0</b>	<b>616.9</b>	<b>638.4</b>	<b>335.0</b>	<b>553.3</b>	<b>973.4</b>	<b>356.4</b>	<b>218.3</b>	<b>1.6x</b>		<b>11.2%</b>	
Ethos US Dollar Fund V-B	2006	50.0	59.4	62.3	4.1	4.1	66.4	7.0	0.0	1.1x	Fourth	2.5%	Fourth
FS Equity Partners V, L.P.	2004	75.0	60.6	121.8	6.6	21.1	128.4	67.8	14.5	2.1x	First	15.5%	Second
FS Equity Partners VI, L.P.	2009	75.0	78.3	181.0	53.2	54.0	234.2	155.9	0.8	3.0x	First	23.7%	First
JFL Equity Investors V, L.P.	2019	100.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	NM	NM	NM	NM
Vista Equity Partners Fund III, L.P.	2008	50.0	54.1	127.6	4.7	8.7	132.3	78.2	4.0	2.4x	First	28.0%	First
Vista Equity Partners Fund VI, L.P.	2016	100.0	110.8	24.8	129.6	144.3	154.4	43.5	14.7	1.4x	First	17.8%	First
Wellspring Capital Partners V, L.P.	2011	75.0	81.9	93.7	33.5	60.7	127.2	45.3	27.2	1.6x	Third	15.7%	Second
Wellspring Capital Partners VI, L.P.	2018	75.0	25.7	0.0	23.1	72.4	23.1	(2.6)	49.3	NM	NM	NM	NM
Yucaipa American Alliance Fund II, LP	2008	75.0	103.2	99.0	68.3	68.3	167.3	64.0	0.0	1.6x	Third	8.9%	Third
Yucaipa American Alliance Fund III, L.P.	2015	39.3	27.6	2.0	28.6	42.3	30.7	3.1	13.6	1.1x	Fourth	4.8%	Fourth
<b>Middle-Market Buyout Total</b>		<b>614.3</b>	<b>490.7</b>	<b>687.4</b>	<b>222.0</b>	<b>431.5</b>	<b>909.4</b>	<b>418.7</b>	<b>209.5</b>	<b>1.9x</b>		<b>15.2%</b>	

# Investment Performance by Sub Strategy – Active Funds



As of December 31, 2019. In USD millions.

Investment	Vintage Year	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Exposure	Total Value	Gain/(Loss)	Unfunded Commitment	TVPI	TVPI Quartile	IRR	IRR Quartile
Altaris Constellation Partners IV, L.P.	2018	10.0	3.1	0.0	4.3	11.2	4.3	1.2	NM	NM	NM	NM	NM
Altaris Health Partners II, L.P.	2008	40.0	39.2	96.5	6.0	11.6	102.5	63.3	5.6	2.6x	First	27.4%	First
Altaris Health Partners III, L.P.	2014	50.0	49.5	32.7	58.6	66.7	91.3	41.8	8.1	1.8x	First	29.9%	First
Altaris Health Partners IV, L.P.	2018	40.0	19.5	0.0	23.8	44.3	23.8	4.3	20.5	NM	NM	NM	NM
Boston Ventures Limited Partnership VII	2007	75.0	63.5	67.0	25.5	37.9	92.6	29.1	12.4	1.5x	Third	6.2%	Third
Freeman CT Horizon Investment Fund, LLC	2019	50.0	5.1	0.0	4.6	49.9	4.6	(0.5)	45.3	NM	NM	NM	NM
GenNx360 Capital Partners II, L.P.	2014	25.0	29.0	13.9	28.3	30.6	42.2	13.2	2.3	1.5x	Third	15.3%	Third
ICV Partners II, L.P.	2005	40.0	42.2	70.2	0.7	1.9	70.9	28.7	1.1	1.7x	Second	11.9%	Second
JFL Equity Investors III, L.P.	2011	49.0	54.7	45.3	43.0	43.6	88.3	33.6	0.6	1.6x	Third	12.9%	Third
JFL Equity Investors IV, L.P.	2017	75.0	63.1	28.2	86.7	99.9	114.9	51.8	13.2	1.8x	First	42.2%	First
Leeds Equity Partners V, L.P.	2009	40.0	39.7	54.8	40.8	46.3	95.6	55.9	5.4	2.4x	First	19.8%	Second
Leeds Equity Partners VI, L.P.	2017	75.0	50.1	0.3	61.0	86.2	61.3	11.2	25.1	1.2x	Second	15.9%	Second
RFE Investment Partners VII, L.P.	2008	40.0	38.9	59.2	7.2	7.5	66.4	27.5	0.3	1.7x	Second	8.0%	Third
RFE Investment Partners VIII, L.P.	2012	40.0	41.2	21.1	37.0	37.7	58.1	16.9	0.7	1.4x	Third	9.4%	Third
Vistria Fund III, L.P.	2019	75.0	0.0	0.0	0.0	75.0	0.0	0.0	75.0	NM	NM	NM	NM
<b>Small Buyout Total</b>		<b>724.0</b>	<b>538.9</b>	<b>489.3</b>	<b>427.6</b>	<b>650.2</b>	<b>916.9</b>	<b>377.9</b>	<b>222.6</b>	<b>1.7x</b>		<b>14.0%</b>	
<b>Buyout Total</b>		<b>3,105.5</b>	<b>2,394.1</b>	<b>2,624.8</b>	<b>1,413.9</b>	<b>2,325.4</b>	<b>4,049.0</b>	<b>1,644.6</b>	<b>911.6</b>	<b>1.7x</b>		<b>11.4%</b>	
CT Horizon Legacy Fund, L.P.	2008	15.0	13.7	6.7	4.2	6.8	10.8	(2.9)	2.7	0.8x	Fourth	(4.1%)	Fourth
Hollyport Secondary Opportunities VII, L.P.	2019	75.0	0.0	0.0	0.0	75.0	0.0	0.0	75.0	NM	NM	NM	NM
M2 - Connecticut Emerging Private Equity Fund of Funds, L.P.	2008	105.0	113.0	91.6	65.5	72.2	157.1	44.2	6.7	1.4x	Third	7.8%	Third
Nutmeg Opportunities Fund II, LLC – CT-Direct Investment	2017	50.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	NM	NM	NM	NM
Nutmeg Opportunities Fund II, LLC - EM	2017	35.0	18.2	0.0	22.1	40.2	22.1	3.9	18.1	1.2x	Second	11.2%	Second
Nutmeg Opportunities Fund II, LLC - SMMBF	2018	65.0	19.3	0.0	20.9	67.7	20.9	1.6	46.8	NM	NM	NM	NM
Nutmeg Opportunities Fund LP, CT-EM	2010	35.0	17.0	0.0	36.8	44.6	36.8	19.8	7.8	2.2x	Second	13.3%	Third
Nutmeg Opportunities Fund LP, CT-SMMBF	2010	75.0	59.6	41.7	60.8	72.6	102.4	42.8	11.9	1.7x	Third	13.6%	Third
<b>Fund of Funds Total</b>		<b>455.0</b>	<b>240.7</b>	<b>139.9</b>	<b>210.2</b>	<b>429.1</b>	<b>350.2</b>	<b>109.4</b>	<b>218.8</b>	<b>1.5x</b>		<b>9.2%</b>	
Aldrich Capital Partners Fund, LP	2018	50.0	16.5	0.0	23.0	56.8	23.0	6.5	33.8	NM	NM	NM	NM
Georgian Partners Growth Fund V, L.P.	2019	75.0	0.0	0.0	0.0	75.0	0.0	0.0	75.0	NM	NM	NM	NM
<b>Growth Equity Total</b>		<b>125.0</b>	<b>16.5</b>	<b>0.0</b>	<b>23.0</b>	<b>131.8</b>	<b>23.0</b>	<b>6.5</b>	<b>108.8</b>	<b>NM</b>		<b>NM</b>	
GCM Grosvenor CT Cleantech Opportunities Fund, L.P.	2007	25.0	26.9	8.1	3.8	5.8	11.9	(15.0)	2.0	0.4x	Fourth	(11.8%)	Fourth
PineBridge Global Emerging Markets Partners	1997	85.2	82.8	109.4	1.7	4.0	111.1	28.3	2.4	1.3x	Third	7.1%	Third
StepStone Pioneer Capital Buyout Fund II, L.P.	2006	175.0	188.2	253.2	4.4	29.3	257.6	69.4	24.8	1.4x	Third	4.9%	Third
<b>Multi-Strategy Total</b>		<b>285.2</b>	<b>298.0</b>	<b>370.7</b>	<b>9.9</b>	<b>39.1</b>	<b>380.6</b>	<b>82.6</b>	<b>29.2</b>	<b>1.3x</b>		<b>4.5%</b>	

# Investment Performance by Sub Strategy – Active Funds



As of December 31, 2019. In USD millions.

Investment	Vintage Year	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Exposure	Total Value	Gain/ (Loss)	Unfunded Commitment	TVPI	TVPI Quartile	IRR	IRR Quartile
Castilelake Credit Strategies Fund II, L.P.	2012	50.0	46.7	38.9	24.0	27.7	62.9	16.2	3.8	1.3x	Fourth	6.4%	Fourth
Clearlake Capital Partners III, L.P.	2012	40.0	56.2	122.8	26.1	38.0	148.8	92.6	11.9	2.6x	Second	41.1%	Second
Clearlake Capital Partners IV, L.P.	2015	50.0	67.1	46.3	63.5	70.4	109.8	42.7	6.9	1.6x	First	31.5%	First
Clearlake Capital Partners V, L.P.	2018	60.0	43.9	8.2	59.0	79.0	67.2	23.3	20.1	NM	NM	NM	NM
Clearlake Opportunity Partners II, L.P.	2019	75.0	9.0	0.1	9.2	75.2	9.3	0.3	66.0	NM	NM	NM	NM
Pegasus Partners IV, L.P.	2007	75.0	96.8	72.7	14.6	14.6	87.3	(9.4)	0.0	0.9x	Fourth	(2.1%)	Fourth
Pegasus Partners V, L.P.	2012	50.0	64.5	52.0	43.5	43.5	95.4	31.0	0.0	1.5x	Fourth	9.9%	Fourth
WLR Recovery Fund IV, L.P.	2007	100.0	90.8	117.6	7.0	10.4	124.6	33.7	3.4	1.4x	Third	7.7%	Third
<b>Distressed/Restructuring Total</b>		<b>500.0</b>	<b>474.9</b>	<b>458.6</b>	<b>246.8</b>	<b>358.8</b>	<b>705.3</b>	<b>230.4</b>	<b>112.1</b>	<b>1.5x</b>		<b>10.1%</b>	
Audax Mezzanine III, L.P.	2011	75.0	71.8	81.9	13.2	16.4	95.1	23.3	3.2	1.3x	Second	9.9%	Second
Balance Point Capital Partners III, L.P.	2018	50.0	23.4	2.8	22.5	51.1	25.4	2.0	28.6	NM	NM	NM	NM
Connecticut Growth Capital, LLC	2016	50.0	34.1	20.7	24.5	43.0	45.2	11.1	18.5	1.3x	Second	17.1%	First
GarMark Partners II, L.P.	2005	75.0	105.8	131.4	6.4	6.4	137.7	32.0	0.0	1.3x	Fourth	9.4%	First
ICG Europe Fund VII, L.P.	2018	84.3	28.2	0.0	34.0	90.6	34.5	5.8	56.5	NM	NM	NM	NM
Ironwood Mezzanine Fund IV, L.P.	2017	50.0	15.6	1.0	17.3	51.7	18.3	2.7	34.4	NM	NM	NM	NM
Levine Leichtman Capital Partners IV, L.P.	2008	75.0	74.7	121.3	6.9	20.6	128.3	53.6	13.7	1.7x	Second	18.0%	Second
Levine Leichtman Capital Partners V, L.P.	2013	75.0	92.9	61.7	69.7	84.2	131.4	38.5	14.5	1.4x	First	12.7%	First
<b>Mezzanine Total</b>		<b>534.3</b>	<b>446.4</b>	<b>420.7</b>	<b>194.6</b>	<b>364.0</b>	<b>615.8</b>	<b>168.9</b>	<b>169.4</b>	<b>1.4x</b>		<b>12.7%</b>	
Dover Street X, L.P.	2019	100.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	NM	NM	NM	NM
Landmark Equity Partners XIV, L.P.	2010	100.0	97.8	112.2	15.7	18.6	127.9	30.1	2.9	1.3x	Third	9.6%	Third
Landmark Equity Partners XV, L.P.	2013	100.0	74.1	54.5	39.4	73.1	94.0	19.8	33.6	1.3x	Fourth	11.6%	Third
Landmark Equity Partners XVI, L.P.	2017	100.0	30.0	4.7	27.7	102.3	32.3	2.3	74.6	NM	NM	NM	NM
Secondary Overflow Fund IV, L.P.	2019	50.0	2.8	0.0	3.0	50.2	3.0	0.2	47.2	NM	NM	NM	NM
<b>Secondaries Total</b>		<b>450.0</b>	<b>204.8</b>	<b>171.4</b>	<b>85.8</b>	<b>344.1</b>	<b>257.1</b>	<b>52.3</b>	<b>258.3</b>	<b>NM</b>		<b>NM</b>	
<b>Special Situations Total</b>		<b>1,484.3</b>	<b>1,126.1</b>	<b>1,050.7</b>	<b>527.1</b>	<b>1,066.9</b>	<b>1,578.3</b>	<b>451.6</b>	<b>539.8</b>	<b>1.4x</b>		<b>11.0%</b>	
Constitution Fund V, LLC - Series A	2016	130.0	95.0	1.3	127.8	162.8	129.1	34.1	35.0	1.4x	Third	19.6%	Second
Constitution Fund V, LLC - Series B	2017	20.0	14.8	0.0	16.9	22.1	16.9	2.1	5.2	1.1x	Third	8.9%	Third
Constitution Fund V, LLC - Series C	2019	75.0	6.5	0.0	6.1	74.5	6.1	(0.5)	68.5	NM	NM	NM	NM
Constitution Fund V, LLC - Series D	2019	25.0	1.5	0.0	1.5	25.0	1.5	(0.0)	23.5	NM	NM	NM	NM
Fairview Constitution II, L.P.	2005	200.0	211.6	275.8	43.1	46.2	318.8	107.2	3.1	1.5x	Second	6.6%	Second
Fairview Constitution III, L.P.	2007	300.0	302.1	484.5	231.3	250.5	715.8	413.7	19.3	2.4x	Second	17.4%	First
Fairview Constitution IV, L.P.	2012	150.0	146.2	83.6	201.1	208.4	284.7	138.4	7.3	1.9x	Third	17.9%	Second
Syndicated Communications Venture Partners V, L.P.	2006	27.3	27.3	0.7	0.7	0.7	1.4	(25.9)	0.0	0.1x	Fourth	(29.9%)	Fourth
<b>Balanced Stage VC Total</b>		<b>927.3</b>	<b>805.1</b>	<b>845.8</b>	<b>628.4</b>	<b>790.2</b>	<b>1,474.2</b>	<b>669.1</b>	<b>161.8</b>	<b>1.8x</b>		<b>12.0%</b>	
Constitution Liquidating Fund, L.P.	1987	640.0	532.6	1,364.0	4.6	7.2	1,368.6	836.0	2.6	2.6x	Second	20.0%	Second
Crescendo III, L.P.	1998	36.8	36.8	19.3	1.2	1.2	20.5	(16.4)	0.0	0.6x	Fourth	(9.1%)	Fourth
<b>Early Stage VC Total</b>		<b>676.8</b>	<b>569.5</b>	<b>1,383.3</b>	<b>5.8</b>	<b>8.4</b>	<b>1,389.1</b>	<b>819.6</b>	<b>2.6</b>	<b>2.4x</b>		<b>19.6%</b>	
<b>Venture Capital Total</b>		<b>1,604.1</b>	<b>1,374.6</b>	<b>2,229.1</b>	<b>634.2</b>	<b>798.5</b>	<b>2,863.3</b>	<b>1,488.7</b>	<b>164.4</b>	<b>2.1x</b>		<b>19.1%</b>	
<b>TOTAL</b>		<b>\$7,059.0</b>	<b>\$5,450.1</b>	<b>\$6,415.2</b>	<b>\$2,818.3</b>	<b>\$4,790.9</b>	<b>\$9,244.4</b>	<b>3,783.5</b>	<b>\$1,972.6</b>	<b>1.7x</b>		<b>15.9%</b>	

Market Value is defined as the capital account balance as reported by the General Partner, generally on a fair value basis. TVPI is the ratio of Distributed Capital plus Market Value to Contributed Capital.

Net IRR is defined as the annualized, compound rate of return using daily draws, distributions and Market Value as of the Report Date, net of fees and expenses, including late closing interest.

IRR and TVPI for certain vehicles may have been impacted by Stepstone's or the underlying GPs' use of subscription-backed credit facilities by such vehicles. Reinvested/recycled amounts increase contributed capital.

Performance for investments held less than two years is not considered meaningful. TVPI, IRR and respective Quartile rankings are displayed two years following the first capital call.

Active investments are displayed as commitments made through the report date; excludes liquidated funds. Schedule of Investments shows Crescendo III, L.P. Liquidating Trust due to a small remaining Market Value.

Benchmark: Cambridge Associates Quartile Ranking for IRR and TVPI based on fund strategy and vintage year, reported as of December 31, 2019.

Commitments made in a foreign currency have been converted into US dollars using an exchange rate as of the Report Date, if applicable.

Past performance is not necessarily indicative of future results and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.

Confidential

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# Investment Performance by Vintage Year – Active Funds



As of December 31, 2019. In USD millions.

Investment	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Exposure	Total Value	Gain/(Loss)	Unfunded Commitment	TVPI	TVPI Quartile	IRR	IRR Quartile
Constitution Liquidating Fund, L.P.	640.0	532.6	1,364.0	4.6	7.2	1,368.6	836.0	2.6	2.6x	Second	20.0%	Second
<b>1987 Total</b>	<b>640.0</b>	<b>532.6</b>	<b>1,364.0</b>	<b>4.6</b>	<b>7.2</b>	<b>1,368.6</b>	<b>836.0</b>	<b>2.6</b>	<b>2.6x</b>		<b>20.0%</b>	
PineBridge Global Emerging Markets Partners	85.2	82.8	109.4	1.7	4.0	111.1	28.3	2.4	1.3x	Third	7.1%	Third
<b>1997 Total</b>	<b>85.2</b>	<b>82.8</b>	<b>109.4</b>	<b>1.7</b>	<b>4.0</b>	<b>111.1</b>	<b>28.3</b>	<b>2.4</b>	<b>1.3x</b>		<b>7.1%</b>	
Crescendo III, L.P.	36.8	36.8	19.3	1.2	1.2	20.5	(16.4)	0.0	0.6x	Fourth	(9.1%)	Fourth
Gilbert Global Equity Partners, L.P.	150.0	135.2	194.4	1.9	1.9	196.2	61.1	0.0	1.5x	Third	3.3%	Third
<b>1998 Total</b>	<b>186.8</b>	<b>172.0</b>	<b>213.7</b>	<b>3.0</b>	<b>3.0</b>	<b>216.7</b>	<b>44.7</b>	<b>0.0</b>	<b>1.3x</b>		<b>2.1%</b>	
KKR Millennium Fund, L.P.	100.0	103.0	212.8	0.1	0.1	212.9	110.0	0.0	2.1x	Second	16.4%	Third
<b>2002 Total</b>	<b>100.0</b>	<b>103.0</b>	<b>212.8</b>	<b>0.1</b>	<b>0.1</b>	<b>212.9</b>	<b>110.0</b>	<b>0.0</b>	<b>2.1x</b>		<b>16.4%</b>	
FS Equity Partners V, L.P.	75.0	60.6	121.8	6.6	21.1	128.4	67.8	14.5	2.1x	First	15.5%	Second
<b>2004 Total</b>	<b>75.0</b>	<b>60.6</b>	<b>121.8</b>	<b>6.6</b>	<b>21.1</b>	<b>128.4</b>	<b>67.8</b>	<b>14.5</b>	<b>2.1x</b>		<b>15.5%</b>	
Fairview Constitution II, L.P.	200.0	211.6	275.8	43.1	46.2	318.8	107.2	3.1	1.5x	Second	6.6%	Second
GarMark Partners II, L.P.	75.0	105.8	131.4	6.4	6.4	137.7	32.0	0.0	1.3x	Fourth	9.4%	First
ICV Partners II, L.P.	40.0	42.2	70.2	0.7	1.9	70.9	28.7	1.1	1.7x	Second	11.9%	Second
<b>2005 Total</b>	<b>315.0</b>	<b>359.6</b>	<b>477.3</b>	<b>50.2</b>	<b>54.4</b>	<b>527.5</b>	<b>167.9</b>	<b>4.2</b>	<b>1.5x</b>		<b>7.6%</b>	
Ethos US Dollar Fund V-B	50.0	59.4	62.3	4.1	4.1	66.4	7.0	0.0	1.1x	Fourth	2.5%	Fourth
StepStone Pioneer Capital Buyout Fund II, L.P.	175.0	188.2	253.2	4.4	29.3	257.6	69.4	24.8	1.4x	Third	4.9%	Third
Syndicated Communications Venture Partners V, L.P.	27.3	27.3	0.7	0.7	0.7	1.4	(25.9)	0.0	0.1x	Fourth	(29.9%)	Fourth
<b>2006 Total</b>	<b>252.3</b>	<b>274.9</b>	<b>316.2</b>	<b>9.3</b>	<b>34.1</b>	<b>325.4</b>	<b>50.5</b>	<b>24.8</b>	<b>1.2x</b>		<b>2.8%</b>	
Boston Ventures Limited Partnership VII	75.0	63.5	67.0	25.5	37.9	92.6	29.1	12.4	1.5x	Third	6.2%	Third
Court Square Capital Partners II, L.P.	94.0	91.7	163.3	8.7	11.9	172.1	80.4	3.2	1.9x	Second	12.8%	Second
Fairview Constitution III, L.P.	300.0	302.1	484.5	231.3	250.5	715.8	413.7	19.3	2.4x	First	17.4%	First
GCM Grosvenor CT Cleantech Opportunities Fund, L.P.	25.0	26.9	8.1	3.8	5.8	11.9	(15.0)	2.0	0.4x	Fourth	(11.8%)	Fourth
KKR 2006 Fund, L.P.	125.0	132.7	187.7	46.6	48.9	234.3	101.6	2.3	1.8x	Second	8.8%	Third
Pegasus Partners IV, L.P.	75.0	96.8	72.7	14.6	14.6	87.3	(9.4)	0.0	0.9x	Fourth	(2.1%)	Fourth
Thomas H. Lee Equity Fund VI, L.P.	100.0	105.8	159.1	7.8	12.6	166.9	61.2	4.8	1.6x	Second	7.7%	Third
WLR Recovery Fund IV, L.P.	100.0	90.8	117.6	7.0	10.4	124.6	33.7	3.4	1.4x	Third	7.7%	Third
<b>2007 Total</b>	<b>894.0</b>	<b>910.3</b>	<b>1,260.1</b>	<b>345.3</b>	<b>392.7</b>	<b>1,605.4</b>	<b>695.1</b>	<b>47.4</b>	<b>1.8x</b>		<b>10.3%</b>	

# Investment Performance by Vintage Year – Active Funds



As of December 31, 2019. In USD millions.

Investment	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Exposure	Total Value	Gain/(Loss)	Unfunded Commitment	TVPI	TVPI Quartile	IRR	IRR Quartile
Altaris Health Partners II, L.P.	40.0	39.2	96.5	6.0	11.6	102.5	63.3	5.6	2.6x	First	27.4%	First
CT Horizon Legacy Fund, L.P.	15.0	13.7	6.7	4.2	6.8	10.8	(2.9)	2.7	0.8x	Fourth	(4.1%)	Fourth
Levine Leichtman Capital Partners IV, L.P.	75.0	74.7	121.3	6.9	20.6	128.3	53.6	13.7	1.7x	Second	18.0%	Second
M2 - Connecticut Emerging Private Equity Fund of Funds, L.P.	105.0	113.0	91.6	65.5	72.2	157.1	44.2	6.7	1.4x	Third	7.8%	Third
RFE Investment Partners VII, L.P.	40.0	38.9	59.2	7.2	7.5	66.4	27.5	0.3	1.7x	Second	8.0%	Third
Vista Equity Partners Fund III, L.P.	50.0	54.1	127.6	4.7	8.7	132.3	78.2	4.0	2.4x	First	28.0%	First
Yucaipa American Alliance Fund II, LP	75.0	103.2	99.0	68.3	68.3	167.3	64.0	0.0	1.6x	Third	8.9%	Third
<b>2008 Total</b>	<b>400.0</b>	<b>436.8</b>	<b>601.9</b>	<b>162.8</b>	<b>195.8</b>	<b>764.7</b>	<b>327.9</b>	<b>33.0</b>	<b>1.8x</b>		<b>13.9%</b>	
FS Equity Partners VI, L.P.	75.0	78.3	181.0	53.2	54.0	234.2	155.9	0.8	3.0x	First	23.7%	First
Leeds Equity Partners V, L.P.	40.0	39.7	54.8	40.8	46.3	95.6	55.9	5.4	2.4x	First	19.8%	Second
Welsh, Carson, Anderson & Stowe XI, L.P.	100.0	100.0	129.5	34.3	34.3	163.8	63.8	0.0	1.6x	Third	12.0%	Third
<b>2009 Total</b>	<b>215.0</b>	<b>218.0</b>	<b>365.3</b>	<b>128.3</b>	<b>134.5</b>	<b>493.6</b>	<b>275.5</b>	<b>6.3</b>	<b>2.3x</b>		<b>18.4%</b>	
Landmark Equity Partners XIV, L.P.	100.0	97.8	112.2	15.7	18.6	127.9	30.1	2.9	1.3x	Third	9.6%	Third
Nutmeg Opportunities Fund L.P. CT-EM	35.0	17.0	0.0	36.8	44.6	36.8	19.8	7.8	2.2x	Second	13.3%	Third
Nutmeg Opportunities Fund L.P. CT-SMBF	75.0	59.6	41.7	60.8	72.6	102.4	42.8	11.9	1.7x	Third	13.6%	Third
TA XI, L.P.	75.0	73.7	141.5	46.4	47.7	187.9	114.2	1.3	2.6x	First	23.3%	First
<b>2010 Total</b>	<b>285.0</b>	<b>248.0</b>	<b>295.4</b>	<b>159.6</b>	<b>183.4</b>	<b>455.0</b>	<b>206.9</b>	<b>23.8</b>	<b>1.8x</b>		<b>16.1%</b>	
Audax Mezzanine III, L.P.	75.0	71.8	81.9	13.2	16.4	95.1	23.3	3.2	1.3x	Second	9.9%	Second
JFL Equity Investors III, L.P.	49.0	54.7	45.3	43.0	43.6	88.3	33.6	0.6	1.6x	Third	12.9%	Third
Wellspring Capital Partners V, L.P.	75.0	81.9	93.7	33.5	60.7	127.2	45.3	27.2	1.6x	Third	15.7%	Second
<b>2011 Total</b>	<b>199.0</b>	<b>208.4</b>	<b>220.9</b>	<b>89.7</b>	<b>120.7</b>	<b>310.5</b>	<b>102.2</b>	<b>31.0</b>	<b>1.5x</b>		<b>13.0%</b>	
Castlelake Credit Strategies Fund II, L.P.	50.0	46.7	38.9	24.0	27.7	62.9	16.2	3.8	1.3x	Fourth	6.4%	Fourth
Clearlake Capital Partners III, L.P.	40.0	56.2	122.8	26.1	38.0	148.8	92.6	11.9	2.6x	Second	41.1%	Second
Fairview Constitution IV, L.P.	150.0	146.2	83.6	201.1	208.4	284.7	138.4	7.3	1.9x	Third	17.9%	Second
Pegasus Partners V, L.P.	50.0	64.5	52.0	43.5	43.5	95.4	31.0	0.0	1.5x	Fourth	9.9%	Fourth
RFE Investment Partners VIII, L.P.	40.0	41.2	21.1	37.0	37.7	58.1	16.9	0.7	1.4x	Third	9.4%	Third
Vista Equity Partners Fund IV, L.P.	75.0	80.2	101.9	49.5	62.0	151.3	71.1	12.5	1.9x	First	17.0%	Second
<b>2012 Total</b>	<b>405.0</b>	<b>434.9</b>	<b>420.2</b>	<b>381.1</b>	<b>417.2</b>	<b>801.3</b>	<b>366.3</b>	<b>36.1</b>	<b>1.8x</b>		<b>16.6%</b>	
Court Square Capital Partners III, L.P.	50.0	52.9	32.5	52.8	56.4	85.3	32.4	3.6	1.6x	Second	21.1%	First
Landmark Equity Partners XV, L.P.	100.0	74.1	54.5	39.4	73.1	94.0	19.8	33.6	1.3x	Fourth	11.6%	Third
Levine Leichtman Capital Partners V, L.P.	75.0	92.9	61.7	69.7	84.2	131.4	38.5	14.5	1.4x	First	12.7%	First
<b>2013 Total</b>	<b>225.0</b>	<b>219.9</b>	<b>148.7</b>	<b>161.9</b>	<b>213.7</b>	<b>310.6</b>	<b>90.7</b>	<b>51.8</b>	<b>1.4x</b>		<b>14.4%</b>	
Altaris Health Partners III, L.P.	50.0	49.5	32.7	58.6	66.7	91.3	41.8	8.1	1.8x	First	29.9%	First
Apollo Investment Fund VIII, L.P.	125.0	116.0	53.6	107.0	127.2	160.7	44.7	20.2	1.4x	Third	11.9%	Third
GenNx360 Capital Partners II, L.P.	25.0	29.0	13.9	28.3	30.6	42.2	13.2	2.3	1.5x	Third	15.3%	Third
<b>2014 Total</b>	<b>200.0</b>	<b>194.5</b>	<b>100.2</b>	<b>193.9</b>	<b>224.4</b>	<b>294.1</b>	<b>99.7</b>	<b>30.5</b>	<b>1.5x</b>		<b>16.5%</b>	

# Investment Performance by Vintage Year – Active Funds



As of December 31, 2019. In USD millions.

Investment	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Exposure	Total Value	Gain/ (Loss)	Unfunded Commitment	TVPI	TVPI Quartile	IRR	IRR Quartile
Clearlake Capital Partners IV, L.P.	50.0	67.1	46.3	63.5	70.4	109.8	42.7	6.9	1.6x	First	31.5%	First
Yucaipa American Alliance Fund III, L.P.	39.3	27.6	2.0	28.6	42.3	30.7	3.1	13.6	1.1x	Fourth	4.8%	Fourth
<b>2015 Total</b>	<b>89.3</b>	<b>94.7</b>	<b>48.4</b>	<b>92.1</b>	<b>112.7</b>	<b>140.5</b>	<b>45.8</b>	<b>20.6</b>	<b>1.5x</b>		<b>23.2%</b>	
Connecticut Growth Capital, LLC	50.0	34.1	20.7	24.5	43.0	45.2	11.1	18.5	1.3x	Second	17.1%	First
Constitution Fund V, LLC - Series A	130.0	95.0	1.3	127.8	162.8	129.1	34.1	35.0	1.4x	Third	19.6%	Second
Vista Equity Partners Fund VI, L.P.	100.0	110.8	24.8	129.6	144.3	154.4	43.5	14.7	1.4x	First	17.8%	Second
Welsh, Carson, Anderson & Stowe XII, L.P.	100.0	90.8	41.6	104.0	114.7	145.6	54.8	10.7	1.6x	First	30.1%	First
<b>2016 Total</b>	<b>380.0</b>	<b>330.7</b>	<b>88.4</b>	<b>385.8</b>	<b>464.7</b>	<b>474.3</b>	<b>143.5</b>	<b>78.9</b>	<b>1.4x</b>		<b>21.6%</b>	
BC European Capital X	92.2	60.4	1.2	69.1	101.8	76.7	9.9	32.7	NM	NM	NM	NM
Constitution Fund V, LLC - Series B	20.0	14.8	0.0	16.9	22.1	16.9	2.1	5.2	1.1x	Third	8.9%	Third
Ironwood Mezzanine Fund IV, L.P.	50.0	15.6	1.0	17.3	51.7	18.3	2.7	34.4	NM	NM	NM	NM
JFL Equity Investors IV, L.P.	75.0	63.1	28.2	86.7	99.9	114.9	51.8	13.2	1.8x	First	42.2%	First
Landmark Equity Partners XVI, L.P.	100.0	30.0	4.7	27.7	102.3	32.3	2.3	74.6	NM	NM	NM	NM
Leeds Equity Partners VI, L.P.	75.0	50.1	0.3	61.0	86.2	61.3	11.2	25.1	1.2x	Second	15.9%	Second
Nutmeg Opportunities Fund II, LLC – CT-Direct Investment	50.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	NM	NM	NM	NM
Nutmeg Opportunities Fund II, LLC - EM	35.0	18.2	0.0	22.1	40.2	22.1	3.9	18.1	1.2x	Second	11.2%	Third
<b>2017 Total</b>	<b>497.2</b>	<b>252.3</b>	<b>35.4</b>	<b>300.8</b>	<b>554.1</b>	<b>342.6</b>	<b>83.9</b>	<b>253.3</b>	<b>1.4x</b>		<b>24.4%</b>	
Aldrich Capital Partners Fund, LP	50.0	16.5	0.0	23.0	56.8	23.0	6.5	33.8	NM	NM	NM	NM
Altaris Constellation Partners IV, L.P.	10.0	3.1	0.0	4.3	11.2	4.3	1.2	6.9	NM	NM	NM	NM
Altaris Health Partners IV, L.P.	40.0	19.5	0.0	23.8	44.3	23.8	4.3	20.5	NM	NM	NM	NM
Apollo Investment Fund IX, L.P.	125.0	23.4	0.2	20.2	121.8	20.5	(3.0)	101.6	NM	NM	NM	NM
Balance Point Capital Partners III, L.P.	50.0	23.4	2.8	22.5	51.1	25.4	2.0	28.6	NM	NM	NM	NM
Clearlake Capital Partners V, L.P.	60.0	43.9	8.2	59.0	79.0	67.2	23.3	20.1	NM	NM	NM	NM
EQT VIII, L.P.	81.0	38.5	3.7	38.5	84.6	46.1	3.6	46.2	NM	NM	NM	NM
ICG Europe Fund VII, L.P.	84.3	28.2	0.0	34.0	90.6	34.5	5.8	56.5	NM	NM	NM	NM
Nutmeg Opportunities Fund II, LLC - SMMBF	65.0	19.3	0.0	20.9	67.7	20.9	1.6	46.8	NM	NM	NM	NM
Siris Partners IV, L.P.	50.0	23.1	0.0	26.8	53.7	26.8	3.7	26.9	NM	NM	NM	NM
Vista Equity Partners Fund VII, L.P.	100.0	25.2	0.1	23.6	98.4	23.7	(1.6)	74.7	NM	NM	NM	NM
Wellspring Capital Partners VI, L.P.	75.0	25.7	0.0	23.1	72.4	23.1	(2.6)	49.3	NM	NM	NM	NM
<b>2018 Total</b>	<b>815.3</b>	<b>291.5</b>	<b>15.1</b>	<b>321.2</b>	<b>856.6</b>	<b>340.7</b>	<b>44.8</b>	<b>535.4</b>	<b>NM</b>		<b>NM</b>	

# Investment Performance by Vintage Year – Active Funds



As of December 31, 2019. In USD millions.

Investment	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Exposure	Total Value	Gain/(Loss)	Unfunded Commitment	TVPI	TVPI Quartile	IRR	IRR Quartile
Clearlake Opportunity Partners II, L.P.	75.0	9.0	0.1	9.2	75.2	9.3	0.3	66.0	NM	NM	NM	NM
Constitution Fund V, LLC - Series C	75.0	6.5	0.0	6.1	74.5	6.1	(0.5)	68.5	NM	NM	NM	NM
Constitution Fund V, LLC - Series D	25.0	1.5	0.0	1.5	25.0	1.5	(0.0)	23.5	NM	NM	NM	NM
Dover Street X, L.P.	100.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	NM	NM	NM	NM
Freeman CT Horizon Investment Fund, LLC	50.0	5.1	0.0	4.6	49.9	4.6	(0.5)	45.3	NM	NM	NM	NM
Georgian Partners Growth Fund V, L.P.	75.0	0.0	0.0	0.0	75.0	0.0	0.0	75.0	NM	NM	NM	NM
Hollyport Secondary Opportunities VII, L.P.	75.0	0.0	0.0	0.0	75.0	0.0	0.0	75.0	NM	NM	NM	NM
JFL Equity Investors V, L.P.	100.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	NM	NM	NM	NM
Secondary Overflow Fund IV, L.P.	50.0	2.8	0.0	3.0	50.2	3.0	0.2	47.2	NM	NM	NM	NM
Vistria Fund III, L.P.	75.0	0.0	0.0	0.0	75.0	0.0	0.0	75.0	NM	NM	NM	NM
Welsh, Carson, Anderson & Stowe XIII, L.P.	125.0	0.9	0.0	(2.5)	121.6	(2.5)	(3.4)	124.1	NM	NM	NM	NM
<b>2019 Total</b>	<b>800.0</b>	<b>24.4</b>	<b>0.1</b>	<b>20.3</b>	<b>796.3</b>	<b>20.4</b>	<b>(4.0)</b>	<b>776.0</b>	<b>NM</b>	<b>NM</b>		
<b>Total</b>	<b>\$7,059.0</b>	<b>\$5,450.1</b>	<b>\$6,415.2</b>	<b>\$2,818.3</b>	<b>\$4,790.9</b>	<b>\$9,244.4</b>	<b>\$3,783.5</b>	<b>\$1,972.6</b>	<b>1.7x</b>		<b>15.9%</b>	

Market Value is defined as the capital account balance as reported by the General Partner, generally on a fair value basis.

TVPI is the ratio of Distributed Capital plus Market Value to Contributed Capital.

Net IRR is defined as the annualized, compound rate of return using daily draws, distributions and Market Value as of the Report Date, net of fees and expenses, including late closing interest.

IRR and TVPI for certain vehicles may have been impacted by Stepstone's or the underlying GPs' use of subscription-backed credit facilities by such vehicles. Reinvested/recycled amounts increase contributed capital.

Performance for investments held less than two years is not considered meaningful. TVPI, IRR and respective Quartile rankings are displayed two years following the first capital call.

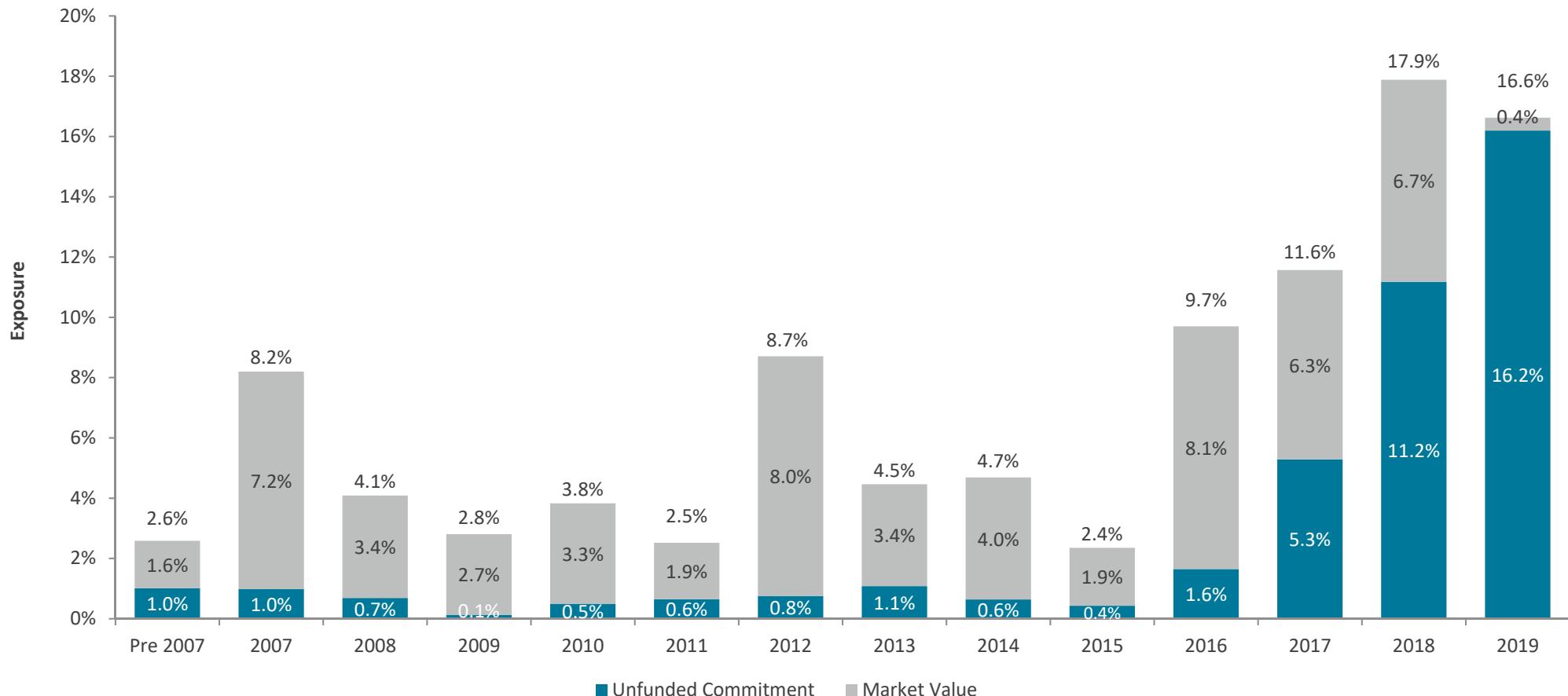
Active investments are displayed as commitments made through the report date; excludes liquidated funds. Schedule of Investments shows Crescendo III, L.P. Liquidating Trust due to a small remaining Market Value.

Benchmark: Cambridge Associates Quartile Ranking for IRR and TVPI based on fund strategy and vintage year, reported as of December 31, 2019.

Commitments made in a foreign currency have been converted into US dollars using an exchange rate as of the Report Date, if applicable.

**Past performance is not necessarily indicative of future results** and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.

# Exposure by Vintage Year

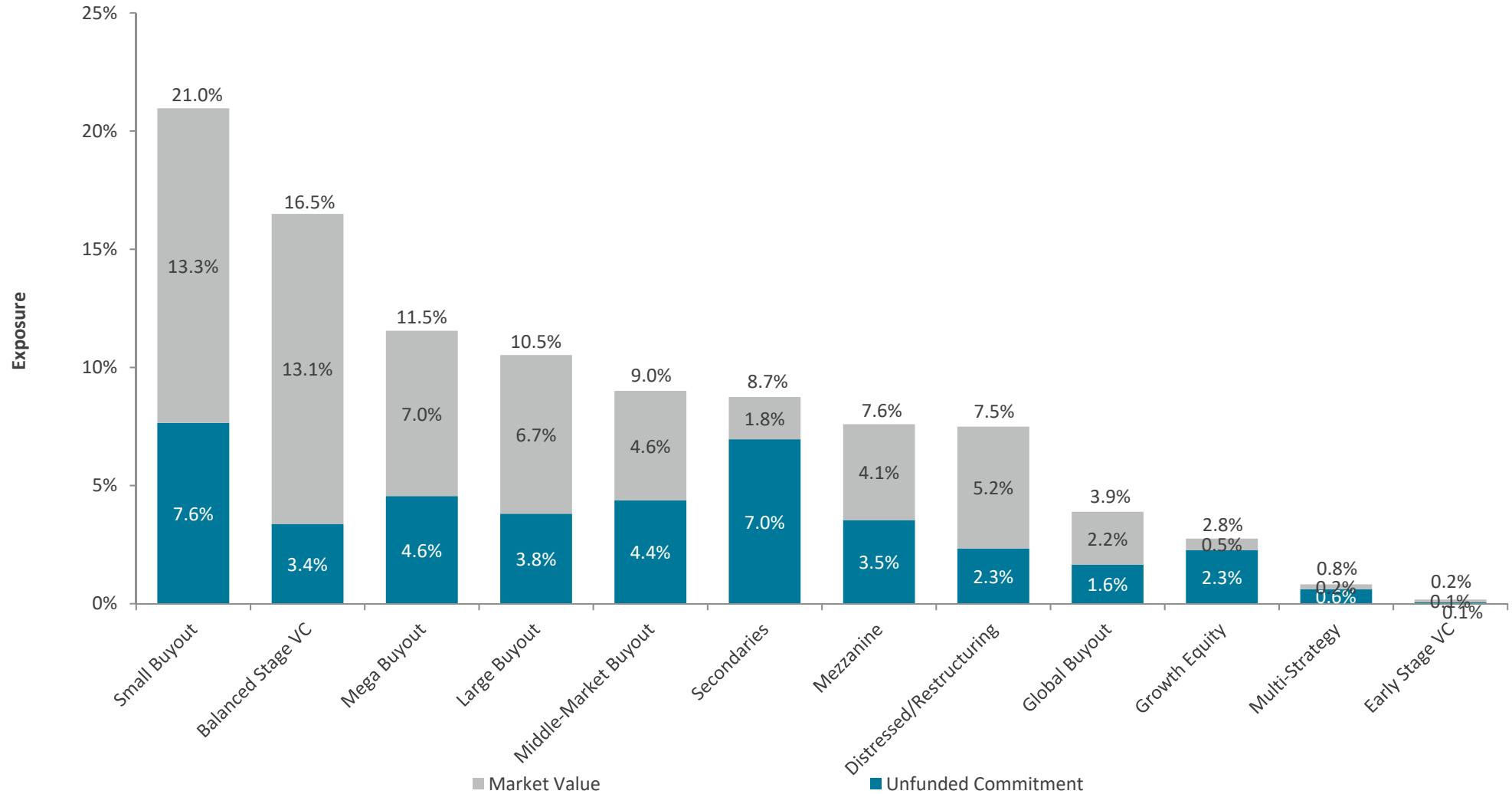


Exposure is defined as the sum of an investor's Market Value plus Unfunded Commitment.

Data includes commitments through the Report Date.

Data reflects active funds.

# Exposure by Sub-Strategy



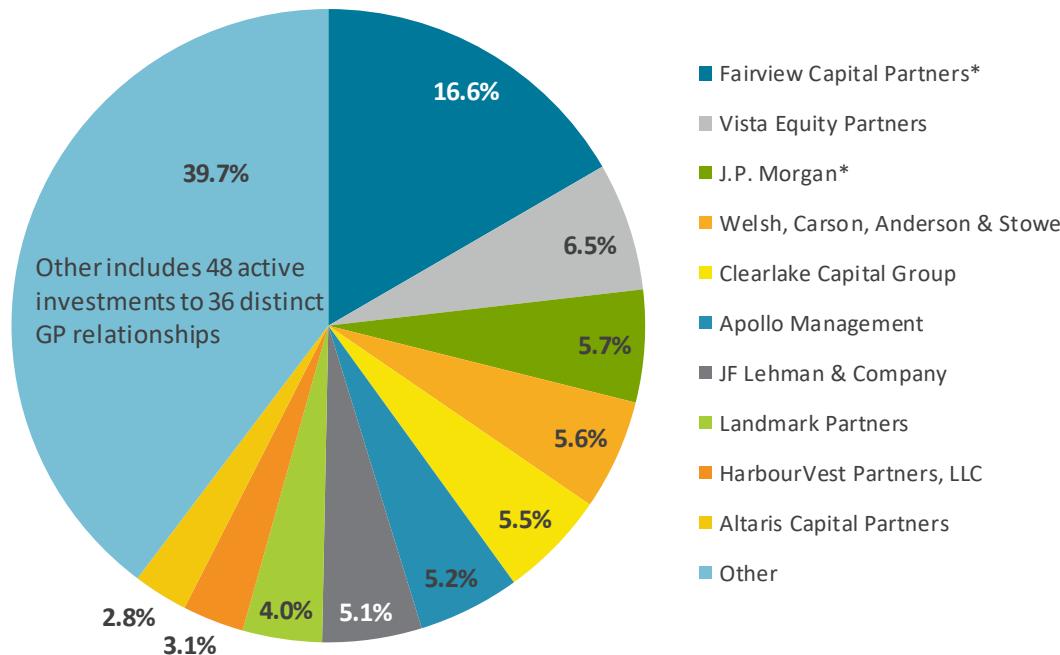
Exposure is defined as the sum of an investor's Market Value plus Unfunded Commitment.

Data includes commitments through the Report Date.

Data reflects active funds.

# Top Managers by Exposure - Active Funds

## Total Exposure by Active Manager



As of December 31, 2019. In USD millions.

Manager	# of Funds	Exposure	% of Total	TVPI	IRR
Fairview Capital Partners*	8	\$797	16.6%	2.2x	19.6%
Vista Equity Partners	4	313	6.5%	1.7x	22.8%
J.P. Morgan*	5	275	5.7%	1.6x	13.3%
Welsh, Carson, Anderson & Stowe	3	271	5.6%	1.6x	14.7%
Clearlake Capital Group	4	263	5.5%	1.9x	39.4%
Apollo Management	2	249	5.2%	1.3x	11.0%
JF Lehman & Company	3	243	5.1%	1.7x	19.6%
Landmark Partners	3	194	4.0%	1.3x	10.4%
HarbourVest Partners, LLC	2	150	3.1%	1.1x	479.9%
Altaris Capital Partners	4	134	2.8%	2.0x	27.7%
Other	48	1,902	39.7%	1.1x	5.5%
<b>Total</b>	<b>86</b>	<b>\$ 4,791</b>	<b>100.0%</b>	<b>1.7x</b>	<b>15.9%</b>

\*Fairview Capital Partners and JP Morgan fund totals include sub-allocations within a single fund entity.

\*\*IRRs presented include active funds only.

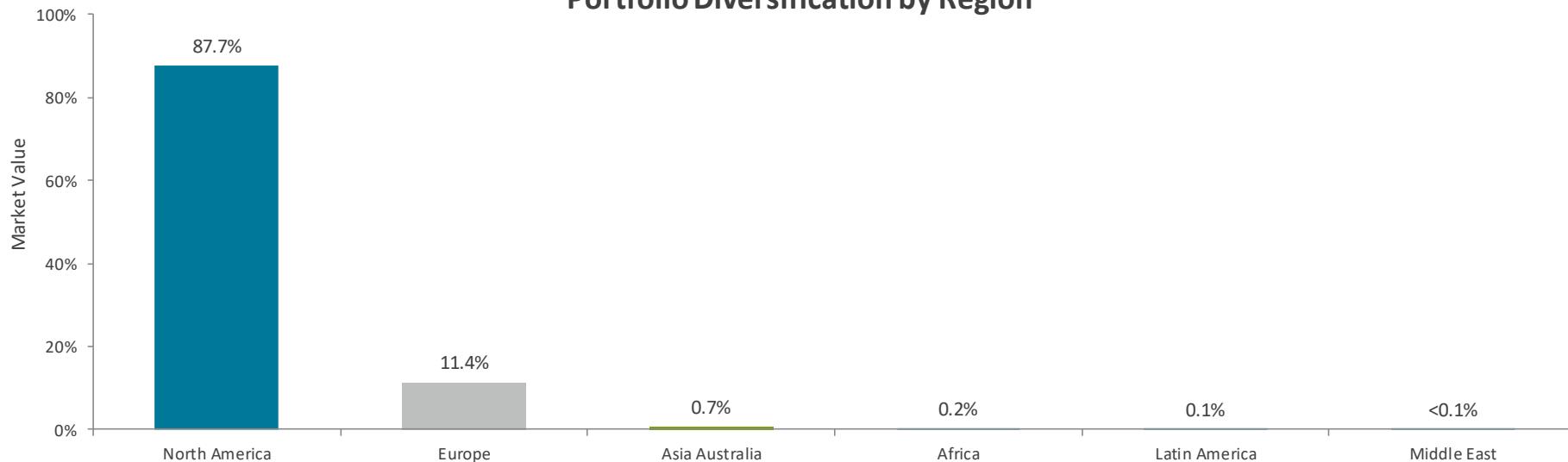
Exposure is defined as the sum of an investor's Market Value plus Unfunded Commitment.

IRR and TVPI for certain vehicles may have been impacted by Stepstone's or the underlying GPs' use of subscription-backed credit facilities by such vehicles. Reinvested/recycled amounts increase contributed capital.

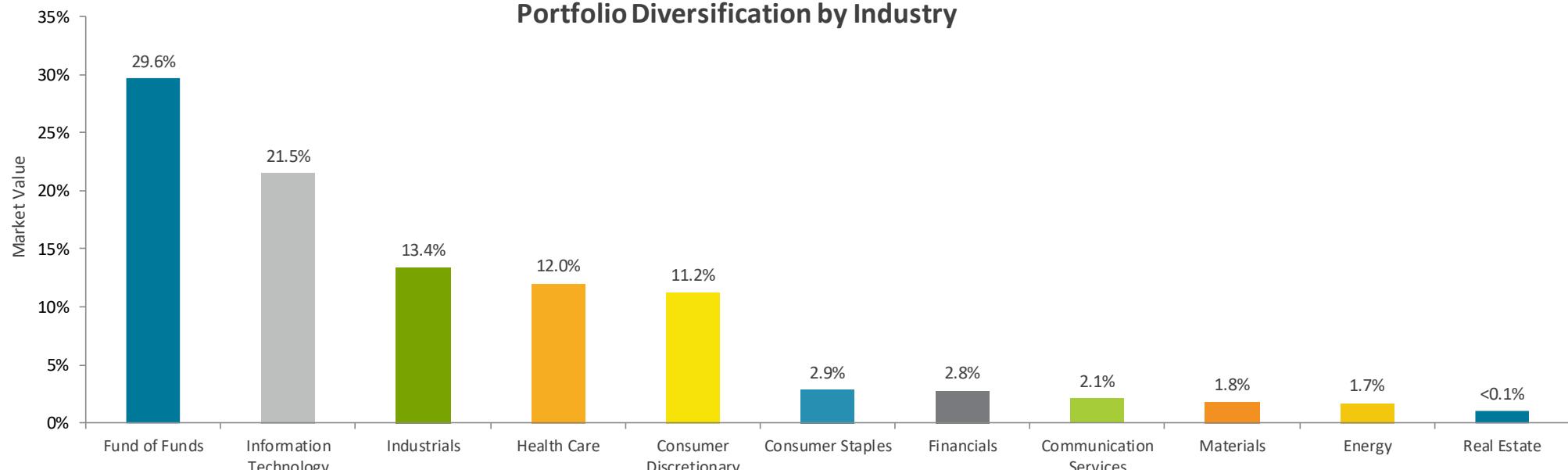
Past performance is not necessarily indicative of future results and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.

# Holdings by Region and Industry

## Portfolio Diversification by Region



## Portfolio Diversification by Industry



Market Value represents the value of portfolio holdings as reported by fund managers.

Values are estimated based on the investor's percent interest in each fund's portfolio holdings.

Values are converted to the investor's currency, when applicable, as of the Report Date.

### III. Connecticut Horizon Fund

# Executive Summary

## Portfolio Summary

This report presents an overview of the Connecticut Retirement Plans and Trust Funds ("CRPTF") Connecticut Horizon Fund ("CHF") private equity program as of December 31, 2019.

CHF was formed by CRPTF in 2007 with the objective of enhancing portfolio returns, diversifying assets and achieving certain strategic goals. In particular:

- 1) CHF was established to generate financial returns commensurate with the private equity asset class. In accordance with CRPTF's Investment Policy Statement, the program will seek to generate annual returns of five percentage points greater than the Russell 3000 ten-year rolling average.
- 2) CHF was established to enhance diversification in CRPTF's private equity portfolio. CRPTF's Private Investment Fund is largely managed by established fund managers targeting mainstream market segments. CHF will provide exposure to investments that are different from those already in CRPTF's portfolio.
- 3) CHF was established to diversify the management of CRPTF's assets while providing opportunities for emerging, minority and women-owned, and Connecticut-based investment firms to compete for a share of the Treasury's investment business.

The CRPTF has allocated \$240.0 million for CHF investments since inception through commitments made to five private equity fund-of-funds. During 2007, CHF commitments were made to Aldus CT Horizon and M2 - Connecticut Emerging Private Equity Fund of Funds ("M2CTEPEFF"). During 2009, Muller & Monroe was appointed to replace Aldus Equity as the general partner of the Aldus CT Horizon fund, which was renamed the CT Horizon Legacy fund. In addition, Aldus CT Horizon's uncommitted capital was reallocated to M2CTEPEFF.

In 2009, the CRPTF committed \$110.0 million to Nutmeg Opportunities Fund, of which \$35.0 million was designated for CHF investments. During June 2017, the CRPTF made a commitment of \$150.0 million to Nutmeg Opportunities Fund II, of which up to \$35.0 million was designated for CHF investments. In January 2019 the CRPTF made a commitment of \$50.0 million to Freeman CT Horizon Investment Fund.

# Connecticut Horizon Fund



- Through December 31, 2019, the PIF had committed \$240.0 million to CHF designated private equity mandates since inception.
- Since inception through December 31, 2019, the PIF's CHF designated investments generated a Net IRR of 7.6%. During the same time period, the Russell 3000 generated an IRR of 9.3%.

As of December 31, 2019. In USD millions.	Vintage Year	Commitment Up To	Contributed Capital	Unfunded Commitment	Distributed Capital	Exposure	Market Value	TVPI	Net IRR
CT Horizon Legacy Fund, L.P.	2008	\$15.0	\$13.7	\$2.7	\$6.7	\$6.8	\$4.2	0.8x	(4.1%)
M2 - Connecticut Emerging Private Equity Fund of Funds, L.P.	2008	105.0	113.0	6.7	91.6	72.2	65.5	1.4x	7.8%
Nutmeg Opportunities Fund L.P. CT-EM	2010	35.0	17.0	7.8	-	44.6	36.8	2.2x	13.3%
Nutmeg Opportunities Fund II, LLC - EM	2017	35.0	18.2	18.1	-	40.2	22.1	1.2x	11.2%
Freeman CT Horizon Investment Fund, LLC	2019	50.0	5.1	45.3	-	49.9	4.6	0.9x	NM
<b>Total</b>		<b>\$240.0</b>	<b>\$167.0</b>	<b>\$80.4</b>	<b>\$98.3</b>	<b>\$213.6</b>	<b>\$133.2</b>	<b>1.4x</b>	<b>7.6%</b>

An IRR is not meaningful in the early years of a partnership's life given the J-curve effect. The J-curve refers to the shape of the curve that illustrates a fund's performance over time. During the initial years of a fund's life, due to illiquidity, stagnant valuations, fees and expenses, a fund's performance tends to be negative (the bottom of the "J"). Eventually, as portfolio companies are realized or increase in value and fees become a smaller percentage of overall contributions, fund performance improves and investors' returns move up the "J" shaped curve. Performance for investments held less than two years is not considered meaningful. TVPI and Net IRR will be displayed two years following the first capital call.

TVPI is the ratio of Distributed Capital plus Market Value to Contributed Capital.

Net IRR is defined as the annualized, compound rate of return using daily draws, distributions and Market Value as of the Report Date, net of fees and expenses, including late closing interest.

Market Value is defined as the investor's value as reported by the fund's manager.

Exposure is defined as the sum of an investor's Market Value plus Unfunded Commitment.

Data compiled from cash flow notices and quarterly financial statements provided by fund managers.

**Past performance is not necessarily indicative of future results** and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.

# Connecticut Horizon Fund Investment Schedule



As of December 31, 2019. In USD millions.

Fund / FOF Holding	Investment Type	Holding Strategy	CHF Demographic	Year of Investment	Invested Capital	Distributed Capital	Market Value	TVPI
<b>CT Horizon Legacy Fund, L.P.</b>			<i>Commitment Date: 06/30/2008</i>					
Capital Point Partners Fund, L.P.	Primary Fund	Mezzanine	African American	2008	5.6	3.4	1.5	0.9x
groSolar	Co-Investment	Energy	Emerging Strategy	2009	2.0	0.0	0.0	0.0x
Vicente Capital Partners Growth Equity Fund, L.P.	Primary Fund	Growth Equity	African American	2009	4.0	3.1	2.7	1.5x
					<b>\$11.6</b>	<b>\$6.5</b>	<b>\$4.2</b>	<b>0.9x</b>
<b>Freeman CT Horizon Investment Fund, LLC</b>			<i>Commitment Date: 01/08/2019</i>					
Reverence Capital Partners Opportunities Fund II, L.P.	Secondary	Buyout	Emerging Firm	2019	2.6	0.0	2.6	0.9x
Wavecrest Growth Partners I, L.P.	Secondary	Growth Equity	Asian, Emerging Firm	2019	1.8	0.0	2.0	1.0x
					<b>\$4.5</b>	<b>\$0.0</b>	<b>\$4.6</b>	<b>1.0x</b>
<b>M2 - Connecticut Emerging Private Equity Fund of Funds, L.P.</b>			<i>Commitment Date: 11/28/2007</i>					
Altus Capital Partners II, L.P.	Primary Fund	Buyout	Connecticut-based	2011	6.9	7.1	3.3	1.5x
Brightwood Capital SBIC I, L.P.	Primary Fund	Mezzanine	African American	2011	9.2	11.7	8.2	2.2x
Carpenter Community BancFund-A	Primary Fund	Growth Equity	Emerging Firm	2009	7.8	12.8	0.0	1.7x
Clearview Capital Fund II, LP, Secondary	Primary Fund	Buyout	Connecticut-based	2008	7.5	17.9	3.4	2.9x
DBL Equity Fund-BAEF II	Primary Fund	Venture Capital	Women	2011	7.0	1.4	8.1	1.4x
Estancia Capital Partners, L.P.	Primary Fund	Buyout	Hispanic	2012	9.5	5.5	8.6	1.5x
Hispania Private Equity II, L.P.	Primary Fund	Buyout	Hispanic	2009	3.8	6.0	0.9	1.8x
Ironwood Mezzanine Fund III, L.P.	Primary Fund	Mezzanine	Connecticut-based	2011	9.5	7.4	3.9	1.2x
MANSA Capital Fund I, L.P.	Primary Fund	Growth Equity	African American	2012	8.9	0.8	6.1	0.8x
Mill Road Capital II, L.P.	Primary Fund	Buyout	Connecticut-based	2012	10.3	4.1	8.4	1.2x
MK Capital II, L.P.	Primary Fund	Growth Equity	Emerging Firm	2011	6.3	3.4	6.8	1.7x
Siris Partners II	Primary Fund	Buyout	African American	2012	10.4	6.0	7.8	1.4x
SW Pelham Fund III, L.P.	Primary Fund	Mezzanine	African American	2008	4.4	5.8	0.1	1.3x
					<b>\$101.5</b>	<b>\$90.1</b>	<b>\$65.5</b>	<b>1.6x</b>
<b>Nutmeg Opportunities Fund II, LLC - EM</b>			<i>Commitment Date: 06/09/2017</i>					
Financial Partners Fund I (Secondary 2)	Primary Fund	Growth Equity	Connecticut-based, Emerging Firm	2018	2.8	0.3	4.1	1.3x
Financial Partners Fund II, L.P.	Secondary	Growth Equity	Connecticut-based, Emerging Firm	2017	7.5	3.1	8.0	1.3x
Southfield Capital II, L.P.	Primary Fund	Buyout	Connecticut-based	2017	12.6	9.1	10.0	1.4x
Nutmeg Opportunities Fund II, LLC - EM Total					<b>\$22.9</b>	<b>\$12.5</b>	<b>\$22.1</b>	<b>1.3x</b>
<b>Nutmeg Opportunities Fund L.P. CT-EM</b>			<i>Commitment Date: 12/23/2008</i>					
Altus Capital Partners II, L.P.	Primary Fund	Buyout	Connecticut-based	2018	4.5	4.7	2.6	1.5x
Atlantic Street Capital II	Primary Fund	Distressed Debt	Connecticut-based	2011	5.4	9.3	10.3	3.4x
Atlantic Street Capital III	Primary Fund	Buyout	Connecticut-based	2016	4.2	0.0	6.8	1.4x
Longitude Venture Partners II	Primary Fund	Venture Capital	Connecticut-based	2011	5.4	1.9	6.7	1.4x
North Castle Partners VI	Primary Fund	Buyout	Connecticut-based	2016	4.5	0.3	4.6	1.0x
Southfield Capital II, L.P.	Primary Fund	Buyout	Connecticut-based	2017	4.2	3.0	3.1	1.4x
Tengram Capital Partners Gen2 Fund	Primary Fund	Growth Equity	Connecticut-based	2013	4.8	4.9	2.6	1.5x
					<b>\$33.0</b>	<b>\$24.2</b>	<b>\$36.8</b>	<b>1.7x</b>
<b>Total</b>					<b>\$173.5</b>	<b>\$133.2</b>	<b>\$133.2</b>	<b>1.5x</b>

Underlying Limited Partner level performance may differ from aggregate fund-level performance due to an additional layer of fees and expenses paid as a result of the fund-of-funds structure.

**Past performance is not necessarily indicative of future results** and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.

No assurance can be given that the performance of unrealized investments has not significantly changed from the date the performance reflected herein was determined.

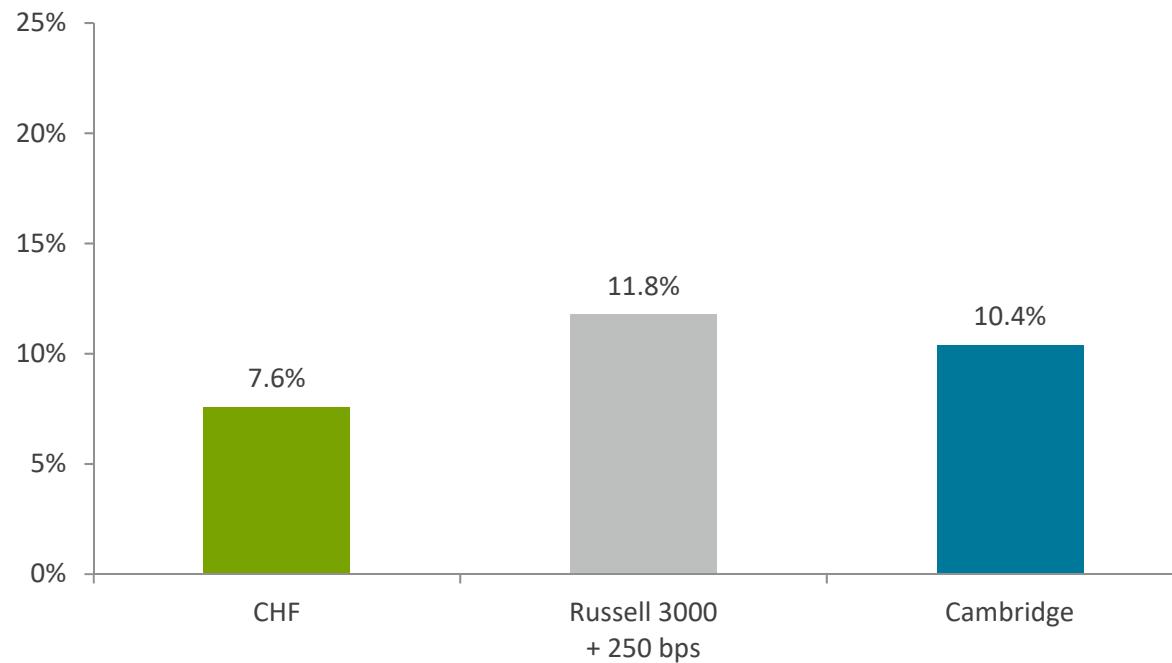
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# Performance versus Benchmarks: CHF

- Since inception to December 31, 2019, CHF generated a Net IRR of 7.6%. Over this time period, CHF underperformed relative to the Russell 3000+250 bps by 352 basis points.

Since Inception Net IRR vs. Benchmarks  
as of December 31, 2019



Returns are calculated using the internal rate of return methodology and are after the deduction of underlying fund manager fees and expenses.

The Benchmark is defined as The Russell 3000 index + 250 bps.

Since Inception Cambridge Benchmark: All Private Equity Fund-of-Funds, Average IRR Net to LPs for Vintages 2008, 2010, 2017, and 2019 as of September 30, 2019. This benchmark data is continuously updated and therefore subject to change.

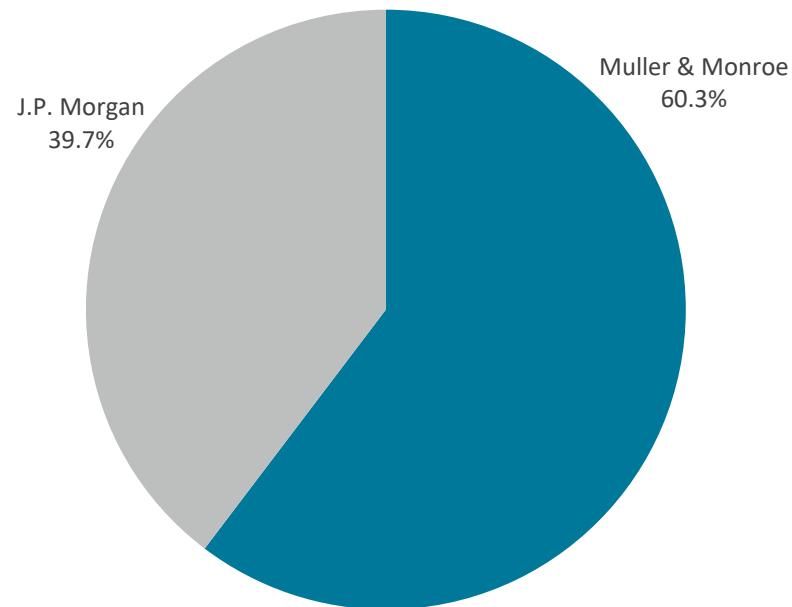
Comparisons between private equity and public equity returns need to be viewed with caution as private equity is an illiquid asset class, whereas publicly listed securities are marked-to-market daily. Despite quarterly mark-to-market of private holdings, valuations are believed to be incorporated at a slower pace than the public markets.

The referenced indices are shown for general market comparisons and are not meant to represent any particular fund. An investor cannot directly invest in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented.

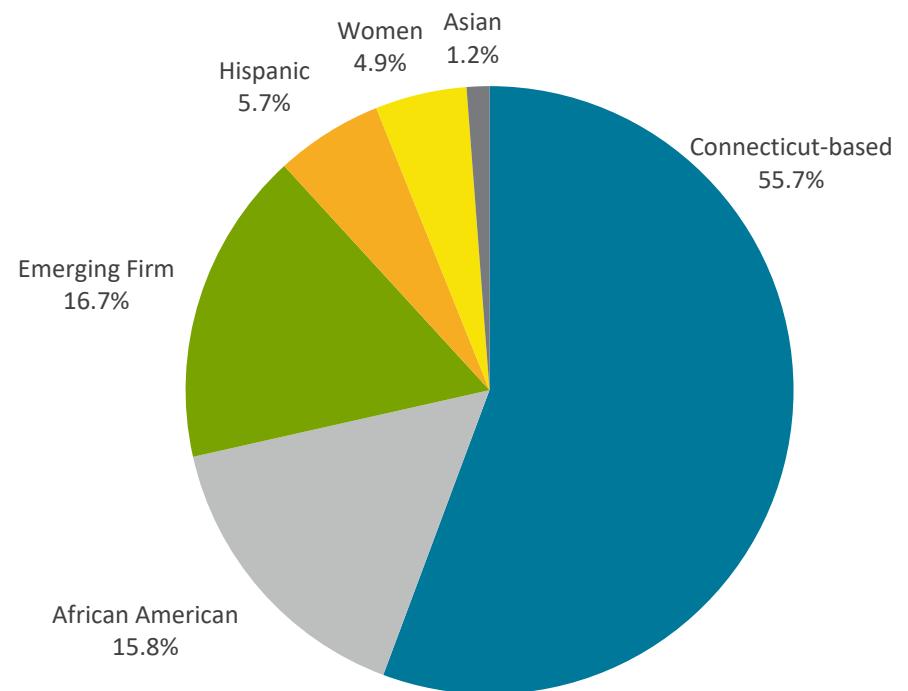
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# Diversification by Manager and Diversity Category

**Manager Exposure**



**Diversity Category**



Diversification by fund-of-funds manager is calculated based on Exposure as of the Report Date. Exposure is defined as the sum of a fund's Market Value plus Unfunded Commitment. Diversification by Diversity Category is calculated based on Market Value of underlying holdings as of the Report Date. Market Value represents the investor's interest in the value of portfolio. Diversity statistics are part of an annual survey last completed as of June 30, 2019.

## IV. In-State Program

# Executive Summary

## Portfolio Summary

This report presents an overview of the Connecticut Retirement Plans and Trust Funds ("CRPTF") In-State Private Equity Program ("In-State Program") as of December 31, 2019.

The In-State Program initiative was presented to and supported by the Investment Advisory Council in 2015, with the objective of enhancing portfolio returns, diversifying assets and achieving certain strategic goals. In particular, the In-State Program was established to diversify the management of CRPTF's assets while providing capital for Connecticut-based companies.

The CRPTF has committed \$145.0 million to the In-State Program since inception, which was allocated to four private equity funds: Connecticut Growth Capital, Constitution Fund V (Series B and D), and Nutmeg Opportunities Fund II – CT-Direct Investments.

# In-State Program

- As of December 31, 2019, the In-State Program's four funds have invested in 12 companies. Those companies employ and/or have employed 794 Connecticut-based employees<sup>1</sup> including three portfolio company investments that have been exited.
- As of December 31, 2019, Connecticut Growth Capital has invested in seven companies with 597 Connecticut-based employees<sup>1</sup>, which, including three exited companies, accounts for 75.2% of the total Connecticut-based employees.
- Of active investments, portfolio company Budderfly has seen the largest growth in Connecticut-based employees<sup>1</sup>. Since Connecticut Growth Capital's initial investment in Budderfly, the number of employees has increased 65.7%.
- As of December 31, 2019, Nutmeg Opportunities Fund II, LLC CT - Direct Investment has not closed any investment opportunities.

As of December 31, 2019. In USD millions.	Vintage Year	Commitment Up To	Contributed Capital	Unfunded Commitment	Distributed Capital	Exposure	Market Value	TVPI	Net IRR	Number of CT-Based Employees			
										Initial Investment	Current	Change	% Change
Connecticut Growth Capital, LLC	2016	\$50.0	\$34.1	\$18.5	\$20.7	\$43.0	\$24.5	1.3x	17.1%	483	597	114	23.6%
Constitution Fund V, LLC - Series B	2017	20.0	14.8	5.2	-	22.1	16.9	1.1x	8.9%	177	180	3	1.7%
Nutmeg Opportunities Fund II, LLC – CT-Direct Investment	2017	50.0	-	50.0	-	50.0	-	0.0x	NM	0	0	0	0.0%
Constitution Fund V, LLC - Series D	2019	25.0	1.5	23.5	-	25.0	1.5	1.0x	NM	17	17	0	0.0%
<b>Total</b>		<b>\$145.0</b>	<b>\$50.4</b>	<b>\$97.1</b>	<b>\$20.7</b>	<b>\$140.0</b>	<b>\$42.9</b>	<b>1.3x</b>	<b>15.0%</b>	<b>677</b>	<b>794</b>	<b>117</b>	<b>17.3%</b>

Note: in August 2018, the commitment for Connecticut Growth Capital, LLC was reduced by US\$25.0 million resulting in an updated commitment of US\$50.0 million.

<sup>1</sup>All employee data was provided to the State of Connecticut from the General Partners of each fund, who then provided it to StepStone as of Q4 2019. Initial Investment refers to the number of Connecticut-based employees at the time that each underlying investment is made.

An IRR is not meaningful in the early years of a partnership's life given the J-curve effect. The J-curve refers to the shape of the curve that illustrates a fund's performance over time. During the initial years of a fund's life, due to illiquidity, stagnant valuations, fees and expenses, a fund's performance tends to be negative (the bottom of the "J"). Eventually, as portfolio companies are realized or increase in value and fees become a smaller percentage of overall contributions, fund performance improves and investors' returns move up the "J" shaped curve. Performance for investments held less than two years is not considered meaningful. TVPI and Net IRR will be displayed two years following the first capital call. IRR and TVPI for certain vehicles may have been impacted by Stepstone's or the underlying GPs' use of subscription-backed credit facilities by such vehicles. Reinvested/recycled amounts increase contributed capital.

TVPI is the ratio of Distributed Capital plus Market Value to Contributed Capital.

Net IRR is defined as the annualized, compound rate of return using daily draws, distributions and Market Value as of the Report Date, net of fees and expenses, including late closing interest.

Market Value is defined as the investor's value as reported by the fund's manager.

Exposure is defined as the sum of an investor's Market Value plus Unfunded Commitment.

Data compiled from cash flow notices and quarterly financial statements provided by fund managers.

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# In-State Program Company Holdings

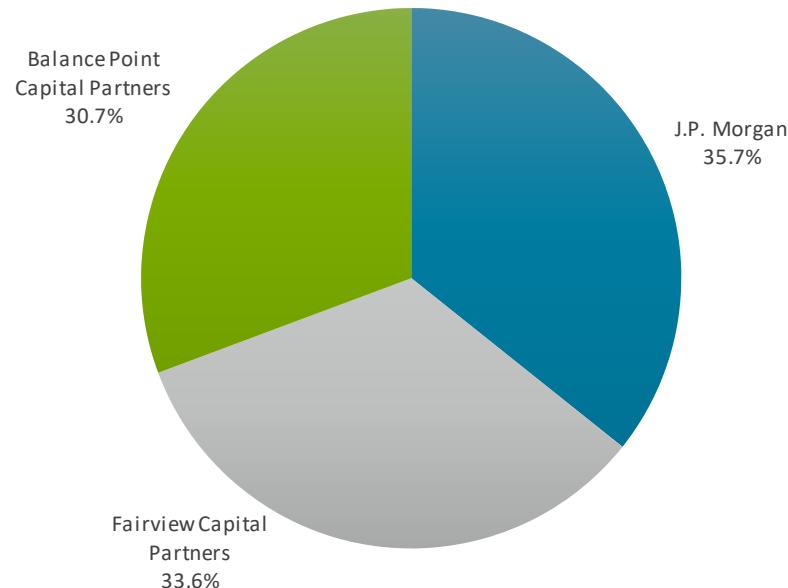
- As of December 31, 2019, the In-State Program had 12 investments across the three funds. Of those investments, Connecticut Growth Capital had invested in seven portfolio companies, Constitution Fund V - Series B had invested in four, and Constitution Fund V - Series D had invested in one portfolio company.

As of December 31, 2019. In USD millions.

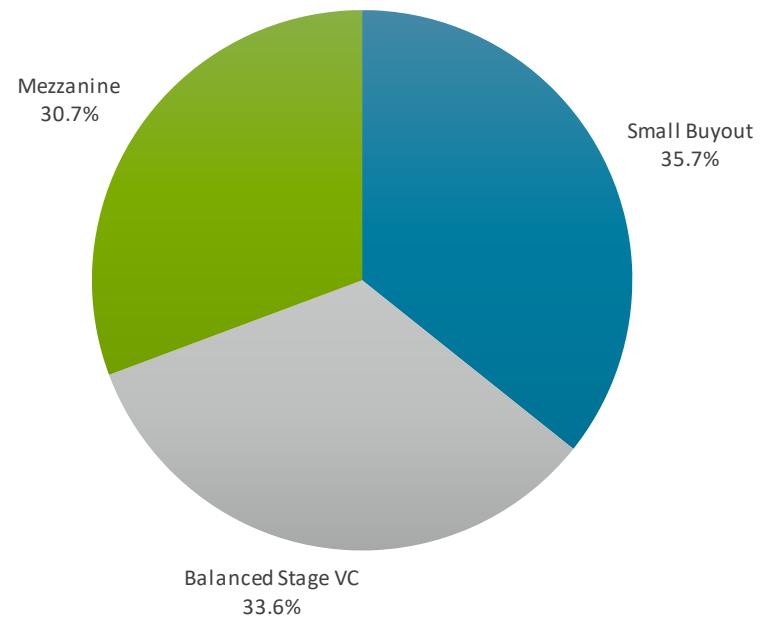
Company	Year of Initial Investment	Exit Date	Industry
<b>Connecticut Growth Capital, LLC</b>	<i>Commitment Date: 12/15/2016</i>	<i>Commitment Up To: US\$50.0 million</i>	
APS Technology	2017		Energy
Awareness Technologies, Inc.	2019		Information Technology
Budderfly	2019		Industrials
Clarus Parent Holdings, LLC	2016	2019	Information Technology
Health Media Network, LLC	2018		Health Care
OneSource Water, LLC	2016	2016	Consumer Discretionary
ProHealth	2016		Health Care
<b>Constitution Fund V, LLC - Series B</b>	<i>Commitment Date: 12/30/2016</i>	<i>Commitment Up To: US\$20.0 million</i>	
D42 Holdings	2019		Information Technology
eVariant, Inc.	2017		Health Care
Lumerity 365, LLC	2019		Financials
R4 Technologies, LLC	2017		Communication Services
<b>Constitution Fund V, LLC - Series D</b>	<i>Commitment Date: 12/21/2018</i>	<i>Commitment Up To: US\$25.0 million</i>	
Covr Financial Technologies, Inc.	2019		Information Technology
<b>Nutmeg Opportunities Fund II, LLC – CT-Direct Investment</b>	<i>Commitment Date: 06/09/2017</i>	<i>Commitment Up To: US\$50.0 million</i>	

# Diversification by Manager and Sub-Strategy

**Manager Exposure**



**Strategy Exposure**



## V. Market Update

The ongoing COVID-19 pandemic is causing significant disruption in nearly every aspect of the world economy. Equity markets are experiencing corrections not seen since the Global Financial Crisis, the Chicago Board Option Exchange's Volatility Index ("VIX") has reached an all-time high and countries around the world are approving large stimulus packages to combat the economic effects of the virus. Given the current volatility and dislocation in the markets due to COVID-19, StepStone has prepared white papers and analysis detailing the potential impact on the private markets with respect to asset classes, sectors, geographies, investment/exit activity, liquidity concerns, etc., which have been shared with our clients.

The remainder of this overview is based on year-end 2019 data and follows StepStone's standard quarter-over-quarter format.

Global equity markets moved higher in the fourth quarter of 2019, as the geopolitical risks and trade uncertainty that dominated markets for much of 2019 faded. The MSCI Emerging Markets Index was the top performer during the quarter, rallying 11.4%, as the planned suspension of tariffs on US\$160 billion of Chinese imports drove returns. The MSCI Europe Index increased 8.5% on encouraging economic data from Germany as well as optimism surrounding the UK's withdrawal from the European Union. The S&P 500 Total Return Index achieved a new record high during the quarter, returning 9.1%, following the announcement of the phase one trade deal and stable economic data. The strong fourth quarter performance pushed global equities to finish the year with its biggest annual gain since 2013, as the S&P 500 outperformed the rest of the world, with an annualized return of 31.5%, while emerging markets and Europe lagged, returning 16.1% and 15.4%, respectively.

In private markets, U.S. leveraged buyout ("LBO") debt volume decreased 14.3% quarter-over-quarter and 8.5% year-over-year to US\$23.7 billion, but was still 17.3% higher than the 10-year quarterly average of US\$20.2 billion. According to data from S&P, purchase price multiples for U.S. LBOs decreased to 11.3x EBITDA in the fourth quarter, down 12.1% from 12.9x EBITDA in the prior quarter, but above the 10-year average of 9.7x EBITDA. Average debt multiples of large corporate U.S. LBO loans decreased to 5.9x from 6.3x over the quarter, but still remained above the 10-year average of 5.5x. Equity contributions for U.S. LBOs increased to near record highs set in 2009 to 50.6%, a 2.6% increase quarter-over-quarter and above the 10-year average of 41.7%.

Global private equity fundraising remained strong in the fourth quarter with totals dollars raised equaling US\$176.5 billion, an increase of 19.5% compared to the fourth quarter of 2018, bringing aggregate amounts raised in 2019 to US\$667.1 billion, a record annual high for the industry. U.S.-focused funds represented 70.0% of total dollar amount raised during the quarter, above the 10-year average of 60.3%. Funds raised in Europe, Asia, and the Rest of World made up 16.2%, 6.1% and 7.6%, respectively, of global fundraising for the quarter. Dollars invested by private equity funds rose 3.0% quarter-over-quarter but was down 4.0% year-over-year, however the average investment per company increased 9.0% quarter-over-quarter to US\$22.3 million. Over 37% of the capital deployed in the fourth quarter went towards companies operating in the Telecommunication Services sector.

Private equity-backed IPO transaction volume decreased in the fourth quarter by 42.0% compared to the prior quarter and by 11.2% compared to the fourth quarter of 2018, with US\$4.5 billion raised in 23 IPOs. Despite the lower quarterly totals, private equity-backed IPO transaction volume for all of 2019 was the largest amount since 2014, raising US\$37.5 billion. The largest IPOs of the fourth quarter were completed by XP Investimentos CCTVM SA (NASDAQ: XP), an operator of a technology-driven financial services platform that provides financial products and services in Brazil, which raised US\$2.3 billion, and Bill.com LLC (NYSE: BILL), a provider of cloud-based software that digitizes and automates back-office financial operations for small and mid-size businesses worldwide, which raised US\$248.5 million. Together these deals represented 55.5% of the total value for all IPOs during the quarter. The largest IPO of 2019 was completed by Uber Technologies, Inc (NYSE: UBER), a provider of technology applications that enable providers of ridesharing and meal preparation and delivery services to transact with end-users worldwide, which raised US\$8.1 billion. M&A activity decreased 22.9% quarter-over-quarter to US\$101.2 billion and was down 63.7% compared to the fourth quarter of 2018. As for 2019, M&A saw its lowest levels of activity since 2011, raising US\$526.1 billion. The largest M&A deals of the quarter were the US\$7.0 billion purchase of Versum Materials, Inc. by MERCK Kommanditgesellschaft auf Aktien (XTRA: MRK) and the US\$5.7 billion purchase of CIR III-1 REIT and ColFin Cobalt REIT, Inc. by The Blackstone Group Inc. (NYSE: BX). Together these deals represented 45.8% of the total value for all deals during the quarter.

# Market Overview – Public Markets

- Global equity markets moved higher in the fourth quarter of 2019, as the geopolitical risks and trade uncertainty that dominated markets for much of 2019 faded.
  - Emerging Markets increased 11.4%, followed by MSCI Asia at 9.8%, S&P 500 at 9.1%, and MSCI ACWI at 8.6%.



## Regional Indices

	3 Mo	1 Yr	3 Yr	5 Yr	10 Yr
MSCI Asia	9.8%	16.1%	8.6%	4.9%	4.0%
MSCI Europe	8.5%	20.0%	6.6%	2.1%	2.2%
MSCI EM	11.4%	15.4%	8.9%	3.1%	1.2%
MSCI ACWI	8.6%	24.1%	10.2%	6.3%	6.6%
S&P 500	8.5%	28.9%	13.0%	9.4%	11.2%
S&P 500 Total Return*	9.1%	31.5%	15.3%	11.7%	13.6%

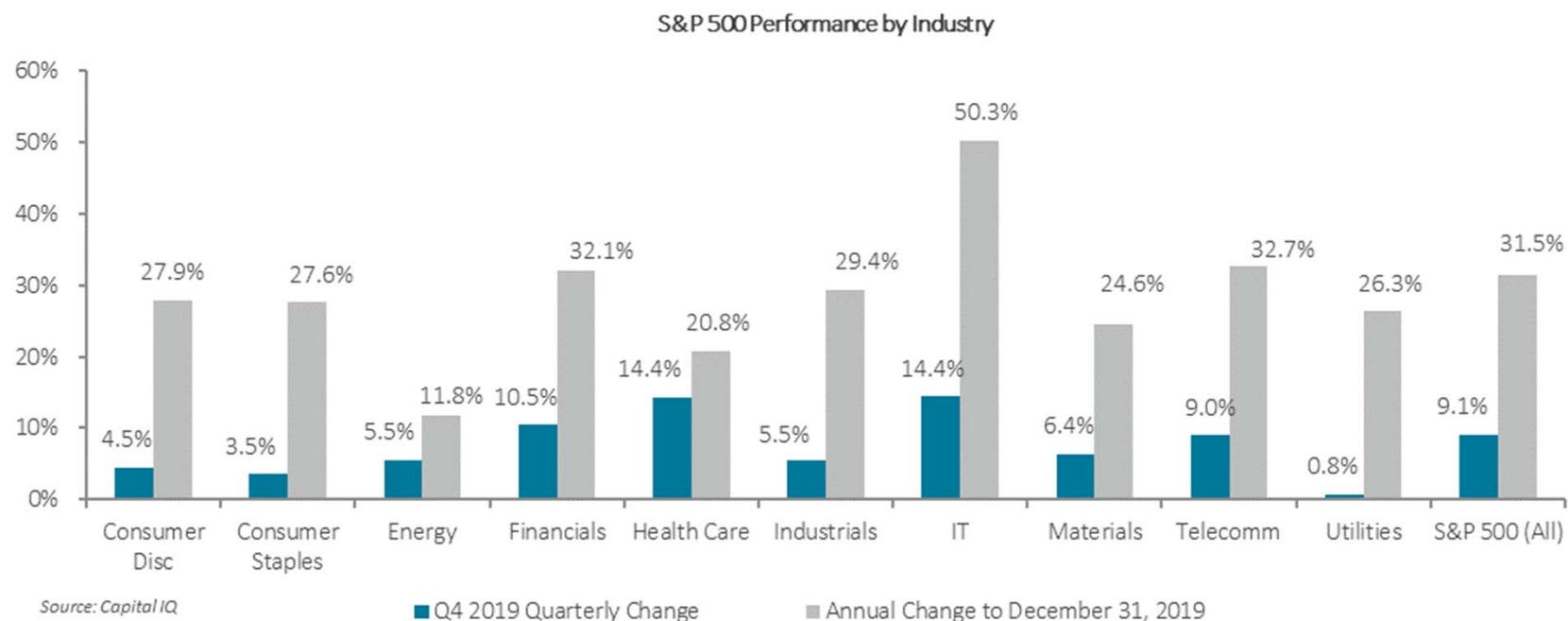
For the period ended December 31, 2019

\*Includes reinvestment of dividends.

Source: Capital IQ

# Market Overview – Sector Overview

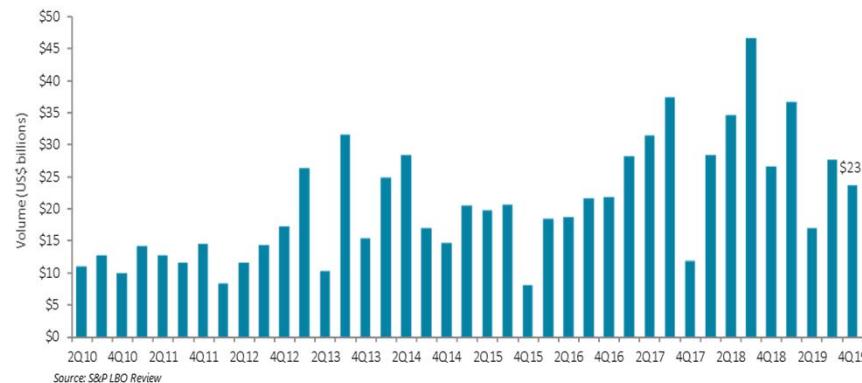
- All ten industry sectors increased during the quarter
  - Information Technology and Health Care were the best performing sectors, both up 14.4%, for the quarter
  - Utilities was the worst performing sector, up 0.8% for the quarter



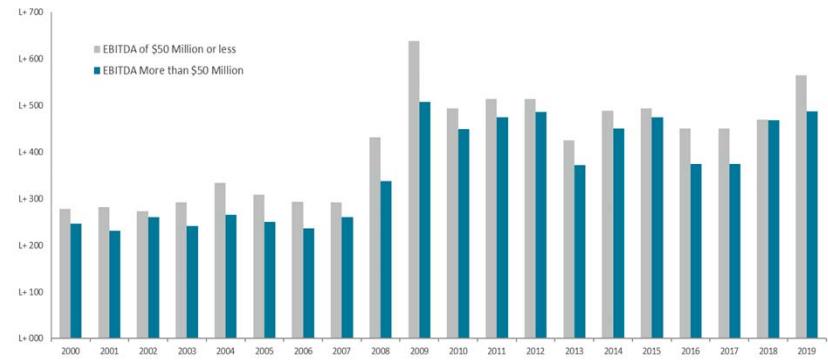
# Market Overview – LBO Activity

- U.S. LBO loan new issuance totaled US\$23.7 billion during the quarter, representing a quarter-over-quarter decrease of 14.3% and a decrease of 10.8% from the fourth quarter of 2018
  - LBO activity slightly increased compared to 2018
  - Dividend/Stock repurchase volume decreased 11.6%, compared to 2018
  - Public-to-Private LBO transaction volume increased 51.7%, compared to 2018

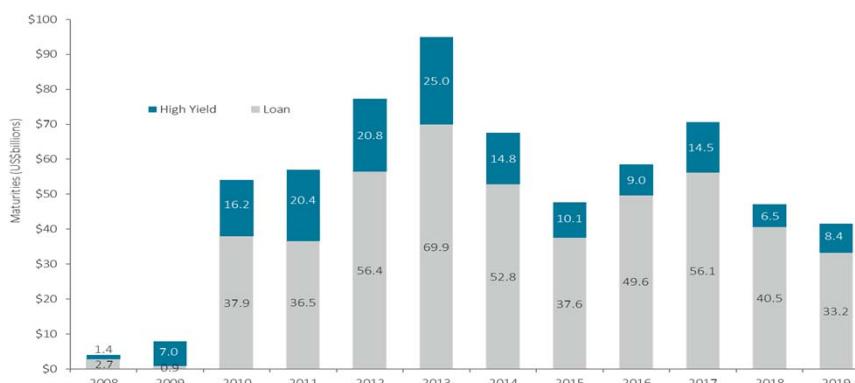
Quarterly U.S. LBO Loan New Issuance



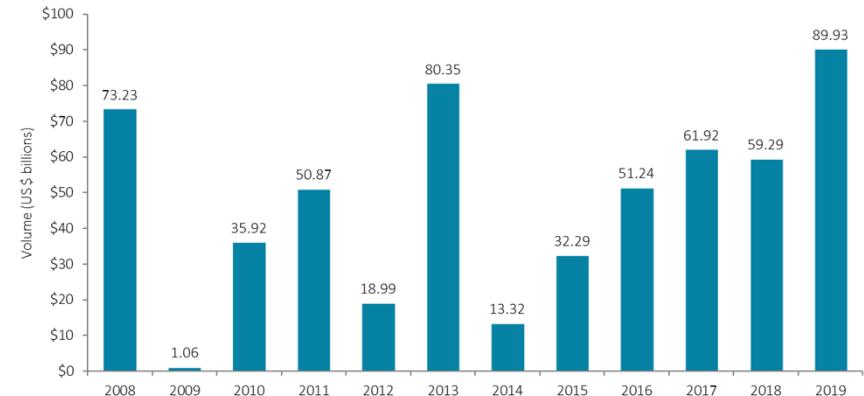
Pro Rata Spread of LBOs



Dividend/Stock Repurchase Volume

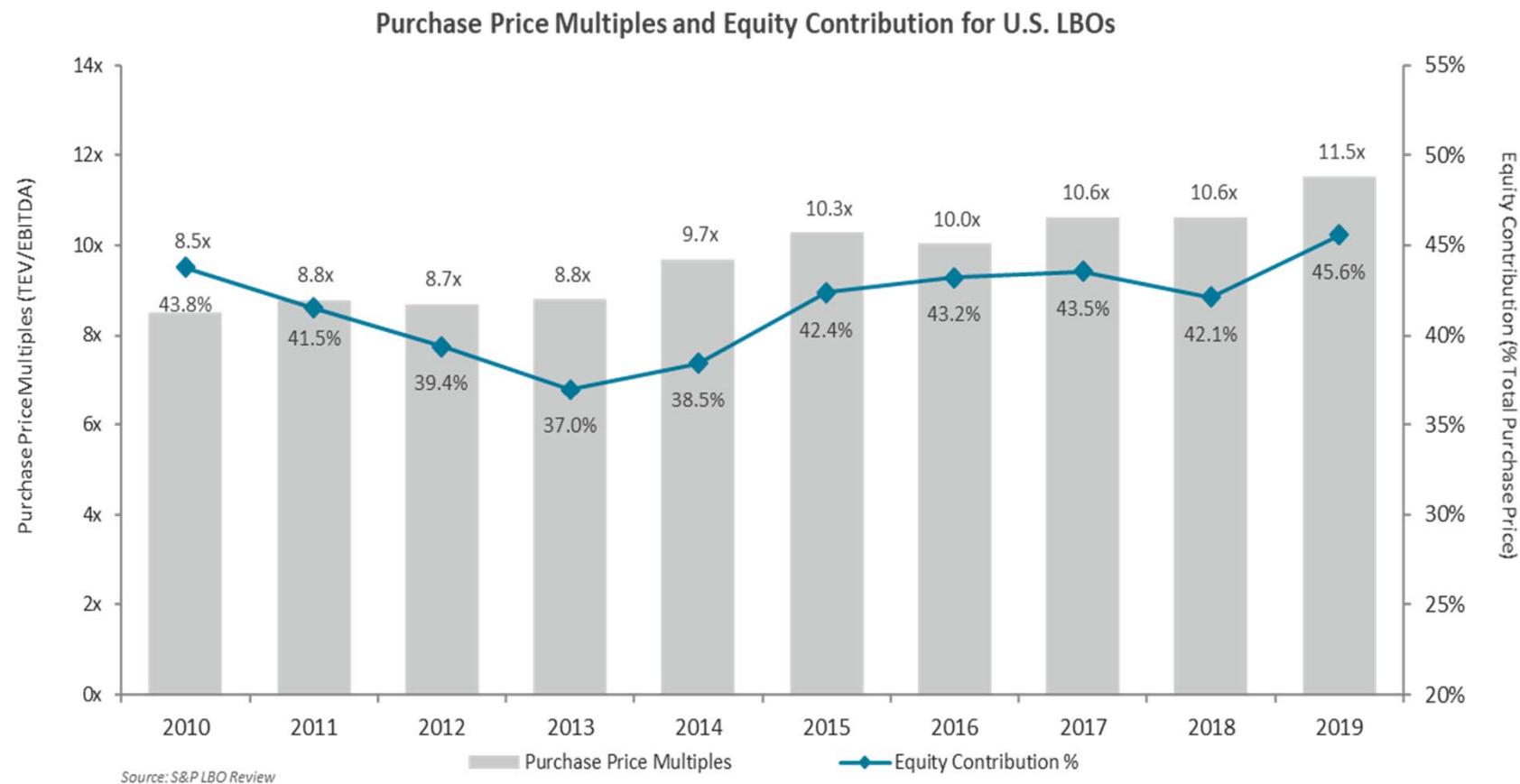


Public-to-Private LBO Transaction Volume



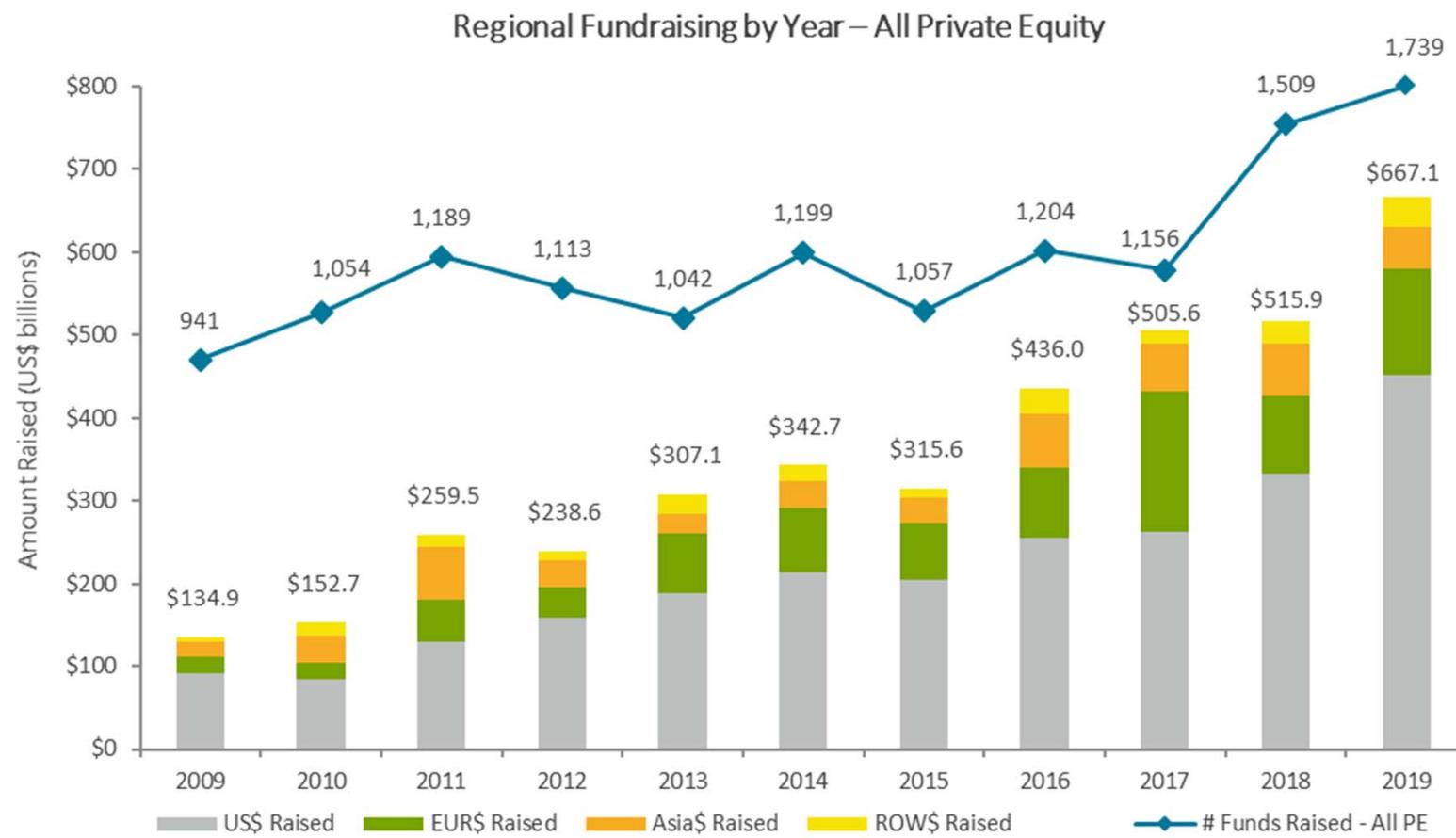
# Market Overview – LBO Activity

- Purchase price multiples for U.S. LBOs was 11.5x EBITDA, an increase from 10.6x in 2018 and above the 10-year average of 9.7x
  - Equity contributions for US LBOs increased from 42.1% to 45.6% year-over-year



# Market Overview – Private Equity Fundraising

- Private equity fundraising totaled US\$667.1 billion in 2019, representing an increase of 19.5% year-over-year
  - Buyout fundraising totaled US\$496.4 billion and Venture Capital raised US\$95.9 billion in 2019
  - The US represented 67.7% of total funds raised in the year, higher than the 10-year average of 60.3%

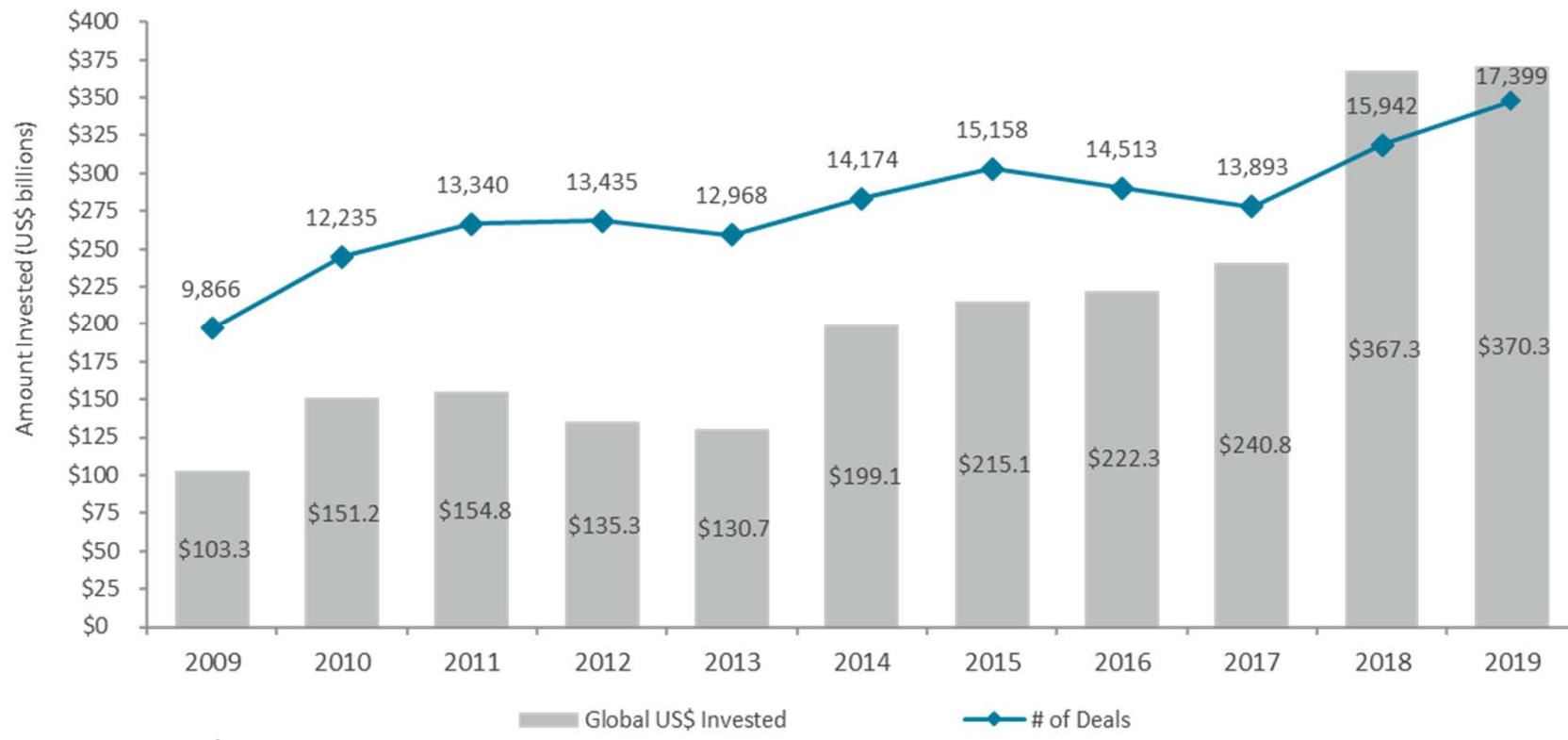


Source: Thomson ONE

# Market Overview – Private Equity Investment Activity

- Private equity funds invested US\$370.3 billion globally during 2019, representing an increase of 0.8% compared to the prior year
  - The average investment size during the year was US\$21.3 million, down 7.6% compared to last year

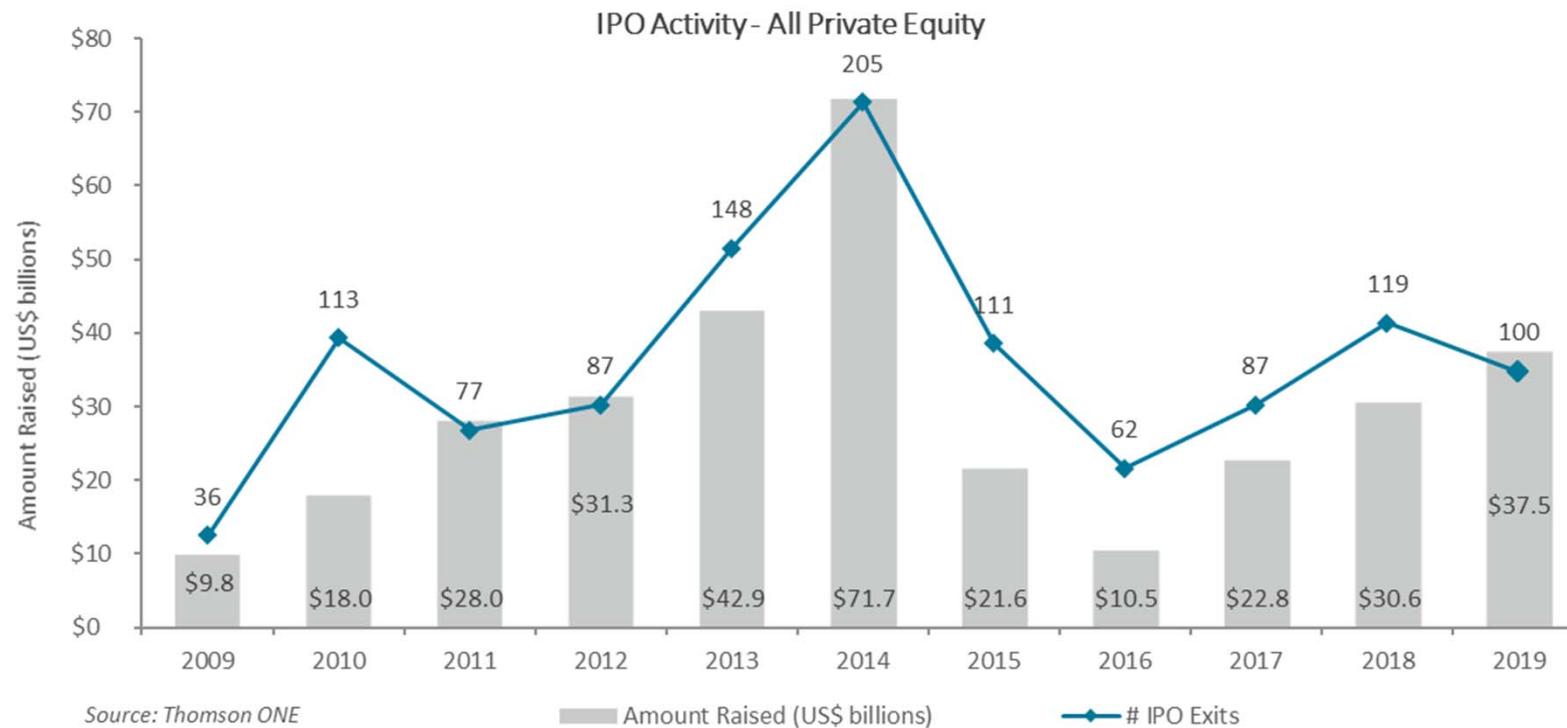
**Investment Activity - All Private Equity**



Source: Thomson ONE

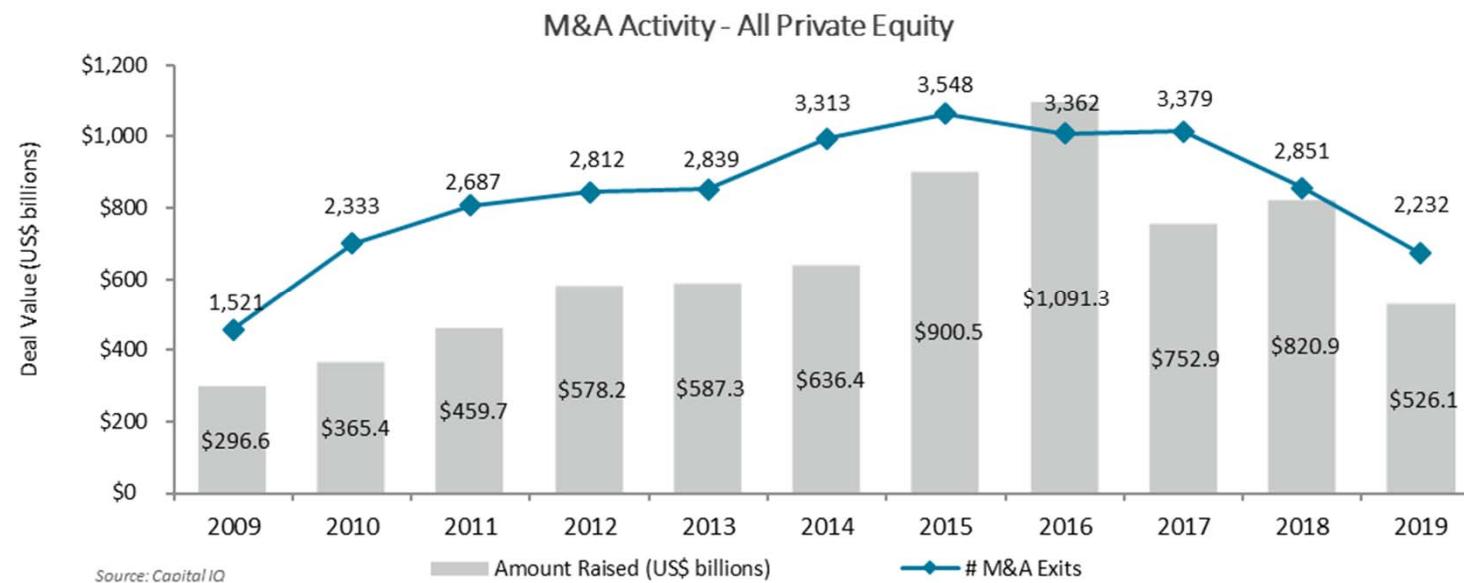
# Market Overview – IPO Activity

- During 2019, Thomson ONE tracked 100 private equity-backed IPOs raising US\$37.5 billion in proceeds, on the New York Stock Exchange and the NASDAQ
  - The number of private equity-backed IPOs decreased 16.0%, compared to 2018
  - The total amount raised increased 22.6%, compared to 2018
  - XP Investimentos CCTVM SA (NASDAQ: XP), an operator of technology-driven financial services platform that provides financial products and services in Brazil, which raised US\$2.3 billion, was the biggest IPO for the quarter



# Market Overview – M&A Activity

- Private equity-backed M&A volume totaled US\$526.1 billion in deals closed during 2019, a decrease of 35.9% compared to the prior year
  - The number of M&A deals decreased 21.7%, compared to 2018
  - The largest deals of the quarter were the US\$7.0 billion purchase of Versum Materials, Inc. by Merck Kommanditgesellschaft auf Aktien (XTRA: MRK) and the US\$5.7 billion purchase of CIR III-1 REIT and ColFin Cobalt REIT, Inc. by The Blackstone Group Inc. (NYSE: BX)



# Risks and Other Considerations

**Risks Associated with Investments.** Identifying attractive investment opportunities and the right underlying fund managers is difficult and involves a high degree of uncertainty. There is no assurance that the investments will be profitable and there is a substantial risk that losses and expenses will exceed income and gains.

**Restrictions on Transfer and Withdrawal; Illiquidity of Interests; Interests Not Registered.** The investment is highly illiquid and subject to transfer restrictions and should only be acquired by an investor able to commit its funds for a significant period of time and to bear the risk inherent in such investment, with no certainty of return. Interests in the investment have not been and will not be registered under the laws of any jurisdiction. Investment has not been recommended by any securities commission or regulatory authority. Furthermore, the aforementioned authorities have not confirmed the accuracy or determined the adequacy of this document.

**Limited Diversification of Investments.** The investment opportunity does not have fixed guidelines for diversification and may make a limited number of investments.

**Reliance on Third Parties.** StepStone will require, and rely upon, the services of a variety of third parties, including but not limited to attorneys, accountants, brokers, custodians, consultants and other agents and failure by any of these third parties to perform their duties could have a material adverse effect on the investment.

**Reliance on Managers.** The investment will be highly dependent on the capabilities of the managers.

**Risk Associated with Portfolio Companies.** The environment in which the investors directly or indirectly invests will sometimes involve a high degree of business and financial risk. StepStone generally will not seek control over the management of the portfolio companies in which investments are made, and the success of each investment generally will depend on the ability and success of the management of the portfolio company.

**Uncertainty Due to Public Health Crisis.** A public health crisis, such as the recent outbreak of the COVID-19 global pandemic, can have unpredictable and adverse impacts on global, national and local economies, which can, in turn, negatively impact StepStone and its investment performance. Disruptions to commercial activity (such as the imposition of quarantines or travel restrictions) or, more generally, a failure to contain or effectively manage a public health crisis, have the ability to adversely impact the businesses of StepStone's investments. In addition, such disruptions can negatively impact the ability of StepStone's personnel to effectively identify, monitor, operate and dispose of investments. Finally, the outbreak of COVID-19 has contributed to, and could continue to contribute to, extreme volatility in financial markets. Such volatility could adversely affect StepStone's ability to raise funds, find financing or identify potential purchasers of its investments, all of which could have material and adverse impact on StepStone's performance. The impact of a public health crisis such as COVID-19 (or any future pandemic, epidemic or outbreak of a contagious disease) is difficult to predict and presents material uncertainty and risk with respect to StepStone's performance.

**Taxation.** An investment involves numerous tax risks. Please consult with your independent tax advisor.

**Conflicts of Interest.** Conflicts of interest may arise between StepStone and investors. Certain potential conflicts of interest are described below; however, they are by no means exhaustive. There can be no assurance that any particular conflict of interest will be resolved in favor of an investor.

**Allocation of Investment Opportunities.** StepStone currently makes investments, and in the future will make investments, for separate accounts having overlapping investment objectives. In making investments for separate accounts, these accounts may be in competition for investment opportunities.

**Existing Relationships.** StepStone and its principals have long-term relationships with many private equity managers. StepStone clients may seek to invest in the pooled investment vehicles and/or the portfolio companies managed by those managers.

**Carried Interest.** In those instances where StepStone and/or the underlying portfolio fund managers receive carried interest over and above their basic management fees, receipt of carried interest could create an incentive for StepStone and the portfolio fund managers to make investments that are riskier or more speculative than would otherwise be the case. StepStone does not receive any carried interest with respect to advice provided to, or investments made on behalf, of its advisory clients.

**Other Activities.** Employees of StepStone are not required to devote all of their time to the investment and may spend a substantial portion of their time on matters other than the investment.

**Material, Non-Public Information.** From time to time, StepStone may come into possession of material, non-public information that would limit their ability to buy and sell investments.

## VI. Glossary

# Glossary

Term	Definition
<b>Balanced Stage Venture Capital</b>	A Venture Capital fund focused on both Early Stage and Late Stage companies
<b>Bridge Financing</b>	Temporary funding that will eventually be replaced by permanent capital from equity investors or debt lenders
<b>Buyout</b>	Fund whose strategy is to acquire controlling interests in companies
<b>Co/Direct Investment</b>	Investment made directly into a company, rather than indirectly through a fund
<b>Committed Capital</b>	Total dollar amount of capital pledged to a fund
<b>Contributed Capital</b>	Total capital contributed to a fund for investments, fees and expenses, including late closing interest paid, less returns of excess capital called and bridge financing
<b>Cost Basis</b>	Remaining amount of invested capital
<b>Debt</b>	Security type that signifies a repayment obligation by a company (e.g. senior debt, subordinated debt, bridge loan etc.)
<b>Distressed</b>	A company's final Stage of development. Company is generally experiencing operational or financial distress
<b>Distressed / Turnaround</b>	Fund whose strategy it is to acquire the Equity or Debt of companies experiencing operational or financial distress
<b>Distributed Capital</b>	Capital distributed to the limited partners, including late closing interest earned
<b>DPI (Distributions to Paid In / The Realization Multiple)</b>	Total gross distributions divided by total gross contributions
<b>Early Stage</b>	A company's first Stage of development. Company is generally generating modest or no revenues
<b>Equity</b>	Security type that signifies ownership of a company (e.g. common stock, preferred stock, warrants, etc.)
<b>Expansion Stage</b>	A company's third Stage of development. Company is generally experiencing high growth and nearing profitability
<b>Exposure</b>	Sum of Market Value plus Unfunded Commitment
<b>Fund-of-Funds</b>	Fund whose strategy is to make investments in other funds
<b>Fund Stage</b>	A fund progresses through three stages over its life: investment (investment period), distribution (post-investment period), and liquidation
<b>Geographic Region</b>	Market location of a company: North America, Western Europe, Africa/Middle East, Latin America, Asia/Pacific Rim
<b>Global Buyout</b>	Fund whose strategy is to acquire or recapitalize businesses with international exposure
<b>Growth Equity</b>	Fund whose strategy is to invest in companies to expand or restructure operations, enter new markets or finance an acquisition without a change of control of the business
<b>Infrastructure</b>	Fund whose strategy is to acquire interests in physical structures and networks that provide the essential services for society's economic and social needs, e.g. roads, tunnels, communication networks, etc.
<b>Internal Rate of Return (IRR)</b>	The discount rate that results in a net present value of zero of a series of cash flows. The IRR considers both cash flow timing and amount and is the preferred performance measure for private market funds
<b>Invested Capital</b>	Capital invested by a fund in portfolio holdings
<b>Investment Type</b>	Classification of an investment vehicle: Primary Fund, Secondary Fund, Fund-of-Funds
<b>J-Curve</b>	Refers to the shape of the curve illustrating a fund's performance over time. During the initial years of a fund's life, as a result of illiquidity, stagnant valuations, fees and expenses, a fund's performance tends to be negative (the bottom of the "J"). Eventually, as portfolio companies are realized or increase in value and fees become a smaller percentage of overall contributions, performance improves and investors' returns move up the "J" shaped curve
<b>Large</b>	Company with a Size greater than \$1 billion
<b>Large Buyout</b>	Fund whose strategy is to acquire or recapitalize Medium/Large sized businesses, Fund size of \$3-6 billion

# Glossary

Term	Definition
<b>Late Stage</b>	A company's second Stage of development. Company is generally generating high revenue growth and high losses
<b>Lower-Mid</b>	Company with a Size greater than \$100 million, but less than \$250 million
<b>Market Value</b>	Holding value of a portfolio company assigned by the General Partner, which generally represents fair value
<b>Mature</b>	A company's fourth Stage of development. Company is generally generating modest to no growth and operating profitably
<b>Mega Buyout</b>	Fund whose strategy is to acquire or recapitalize Large businesses, Fund size over \$6 billion
<b>Mezzanine</b>	Fund whose strategy is to acquire subordinated debentures issued by companies
<b>Middle-Market Buyout</b>	Fund whose strategy is to acquire or recapitalize middle-market businesses, Fund size between \$1-\$3 billion
<b>Multi-Strategy</b>	A Fund that invests across multiple strategies
<b>Natural Resources</b>	Fund whose strategy is to acquire interests in naturally occurring, economically valuable raw materials and all physical facilities and capabilities required for the extraction, refinement, and delivery to end users, e.g. oil and gas properties, timberland, etc.
<b>Net IRR</b>	Annualized effective compound rate of return using daily contributions, distributions and Market Value as of the Report Date, net of all fees and expenses, including late closing interest
<b>Percent Interest</b>	Represents an investor's economic interest in a fund based upon the investor's commitment divided by total fund commitments
<b>Primary Investment</b>	An interest in a private equity fund acquired directly from the fund manager during the fundraising period
<b>Public Market Equivalent (PME)</b>	A private equity benchmark that represents the performance of a public market index expressed in terms of an IRR, using the same cash flows and timing as the investor's investment activity in private equity. The PME serves as a proxy for the return the investor could have achieved by investing in the public market. The PME benchmark return assumes cash flows are invested at the end of each day.
<b>Publication Date</b>	Refers to the date this report was created as reflected in the Executive Summary
<b>Real Assets</b>	Fund whose strategy is to invest in assets that are tangible or physical in nature such as land, machinery, and livestock
<b>Real Estate</b>	Fund whose strategy is to acquire interests in real estate property
<b>Realized Capital</b>	Capital distributed to a fund from portfolio holdings
<b>Recallable / Recyclable Capital</b>	Capital that has been previously distributed by a fund to investors but may be called again for investment purposes. It is generally associated with realizations that have occurred in the early years of a fund or refers to uninvested capital that has been temporarily returned.
<b>Recapitalization</b>	The reorganization of a company's capital structure
<b>Report Date</b>	Refers to the end date of the reporting period as reflected on the cover page
<b>Return on Investment (ROI)</b>	Ratio of Realized Capital plus Market Value to Invested Capital

# Glossary

Term	Definition
<b>Russell 3000® Total Return Index</b>	The Russell 3000® Total Return Index measures the performance, including dividend reinvestment, of the largest 3000 U.S. companies representing approximately 98% of the investable U.S. equity market.
<b>RVPI (Residual Value to Paid In)</b>	The market value of all remaining investments within a fund divided by total gross contributions
<b>Secondary Investment</b>	Investments that involve the purchase of private equity fund interests or portfolios of direct investments in privately held companies from existing institutional Investors
<b>Sector</b>	Industry in which the company operates: technology, telecommunications, healthcare, financial services, industrial, consumer, energy, etc.
<b>Size</b>	Capitalization size of a company: Large, Upper-Mid, Lower-Mid, Small
<b>Small Business Investment Company (SBIC)</b>	Lending and investment firms that are licensed and regulated by the Small Business Administration (SBA). The licensing enables them to borrow from the federal government to supplement the private funds of their Investors.
<b>Small Buyout</b>	Fund whose strategy is to acquire or recapitalize Small businesses typically with a TEV of less than \$250 million, Fund size of less than \$100 million
<b>Stage</b>	The course of development through which a company passes from its inception to its termination: Early, Late, Expansion, Mature, Distressed
<b>Sub-Asset Class</b>	Private equity investments are generally classified as Buyout, Venture Capital, Mezzanine, Distressed/Turnaround, and Fund-of-Funds
<b>Total Value</b>	Equals the sum of Market Value and Distributed Capital
<b>TVPI (Total Value to Paid In)</b>	Market value plus gross distributions divided by total gross contributions
<b>Unfunded Commitment</b>	Amount of capital that remains to be contributed to a fund as defined in a fund's limited partnership agreement
<b>Upper-Mid</b>	Company with a Size greater than \$250 million but less than \$1 billion
<b>Venture Capital</b>	Fund whose strategy is to make investments in Early Stage and/or Late Stage companies
<b>Vintage Year</b>	Vintage Year is defined as the earlier of the year in which investors first contribute capital to a fund or the year a fund commences operating activity. If neither first contribution or first investment has occurred as of Report Date, Commitment Year is used as a preliminary Vintage Year.

# CONNECTICUT RETIREMENT PLANS & TRUST FUNDS

## REAL ESTATE FUND PERFORMANCE REVIEW

Fourth Quarter 2019



June 10, 2020



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

# **REAL ESTATE PORTFOLIO REVIEW**

*FOURTH QUARTER 2019*

NEPC, LLC

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# PORTFOLIO PERFORMANCE SUMMARY

**The table below displays trailing time period performance for the State of Connecticut Real Estate Portfolio as of December 31, 2019, along with select benchmarks**

- The policy benchmark is the NCREIF ODCE Index, which is comprised of open-end core real estate funds; we also show two additional benchmarks:**
  - The NCREIF Property Index, a benchmark of unlevered core real estate returns
  - The Thomson-One/Cambridge Associates benchmark consists of non-core (value-add and opportunistic) closed-end real estate funds
- The total real estate portfolio generated a total net return of 1.6% in the fourth quarter, and has generated an annualized 8.5% for the trailing 5 years**
  - The portfolio out-performed the policy benchmark over the trailing 1-, 3-, and 5-year periods

Portfolio Performance	Net Asset Value (\$M)	YTD	1 Year	3 Year	5 Year	10 Year	Inception
<b>State of Connecticut: Total Real Estate Portfolio</b>	<b>\$2,386.6</b>	<b>6.2%</b>	<b>6.2%</b>	<b>7.1%</b>	<b>8.5%</b>	<b>10.0%</b>	<b>5.7%</b>
<i>Policy Benchmark: NFI-ODCE Index<sup>1</sup></i>		<i>4.4%</i>	<i>4.4%</i>	<i>6.1%</i>	<i>8.0%</i>	<i>11.4%</i>	<i>N/A</i>
<b>Other Real Estate Benchmarks</b>							
<i>NCREIF Property Index<sup>2</sup></i>		<i>6.4%</i>	<i>6.4%</i>	<i>6.7%</i>	<i>8.3%</i>	<i>10.2%</i>	<i>N/A</i>
<i>Thomson-One/Cambridge Real Estate Index<sup>3</sup></i>		<i>8.7%</i>	<i>8.7%</i>	<i>10.1%</i>	<i>9.5%</i>	<i>11.1%</i>	<i>N/A</i>

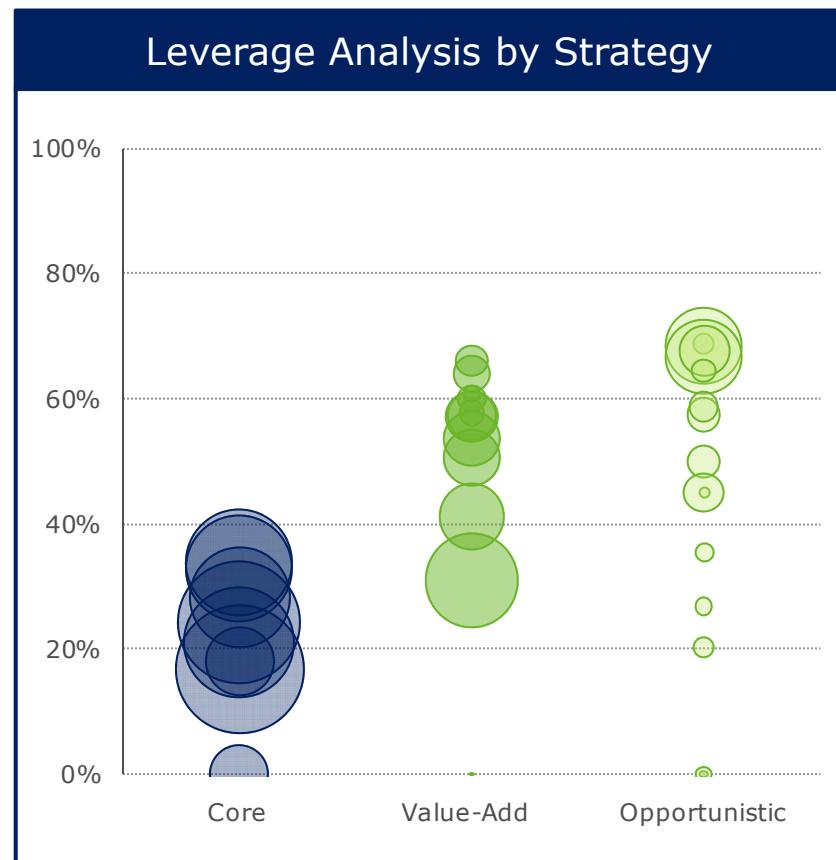
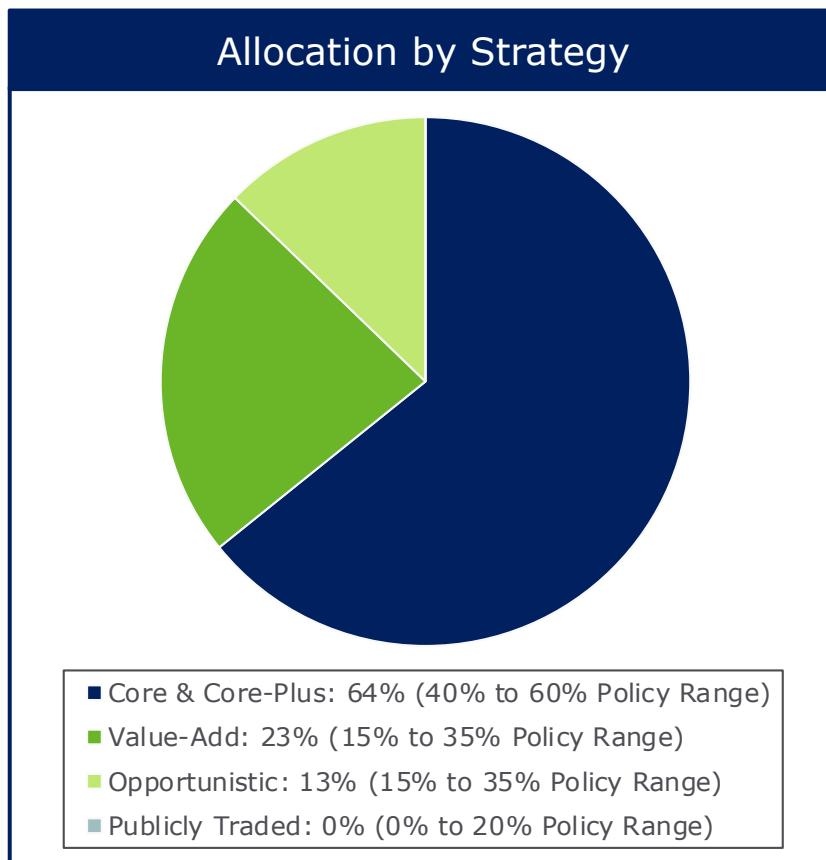
Data as of December 31, 2019. Sources include NCREIF, Thomson-One/Cambridge Associates, Manager data, and NEPC. Additional notes:

- The NFI-ODCE Index represents pooled returns of open-end comingled core funds in the ODCE Index. The ODCE includes the effects of leverage, and returns shown are time-weighted and net of fees.
- The NCREIF Property Index (NPI) represents property-level returns of institutionally-owned core real estate properties in the United States. The NPI is unlevered, and returns are time-weighted and gross of fees.
- The Thomson-One/Cambridge Benchmark represents pooled horizon internal rate of return (IRR) calculations, net of fees, across value-add and opportunistic real estate funds.
- The timing and magnitude of fund cash flows are integral to the IRR performance. Benchmark indices that are time weighted measures should not be directly compared to dollar-weighted IRR calculations. Index data is continuously updated and is therefore subject to change.



# PORTFOLIO HIGHLIGHTS

- **Relative to the policy target ranges, the State of Connecticut real estate portfolio is currently over-allocated to core real estate and under-allocated to opportunistic real estate**
  - The portfolio is in compliance with regard to value-add and publicly traded real estate
- **The portfolio has a weighted average leverage ratio of 34.6%**



Data as of December 31, 2019.

Leverage measured as loan-to-value and is reported by each underlying Manager. Size of bubble indicates relative size of investment (by net asset value).

# MANAGER RELATIONSHIPS

- **As of December 31, 2019, the real estate portfolio had 41 active investments with 24 managers**

Top Ten Relationships – NAV

Manager Name	# of Funds	NAV (\$M)
Morgan Stanley Real Estate	1	\$286.25
Barings Real Estate	1	\$263.56
UBS Realty Advisors	3	\$226.00
PGIM Real Estate	1	\$215.72
USAA Real Estate	2	\$205.37
Hart Realty Advisors	1	\$233.52
American Realty Advisors	1	\$177.75
The Blackstone Group	5	\$210.61
Clarion Partners	1	\$155.13
Crow Holdings Real Estate	2	\$134.11
<b>Total Top Ten</b>		<b>\$2,108.02</b>
90% of Total Portfolio (by Net Asset Value)		

Top Ten Relationships – Total Exposure

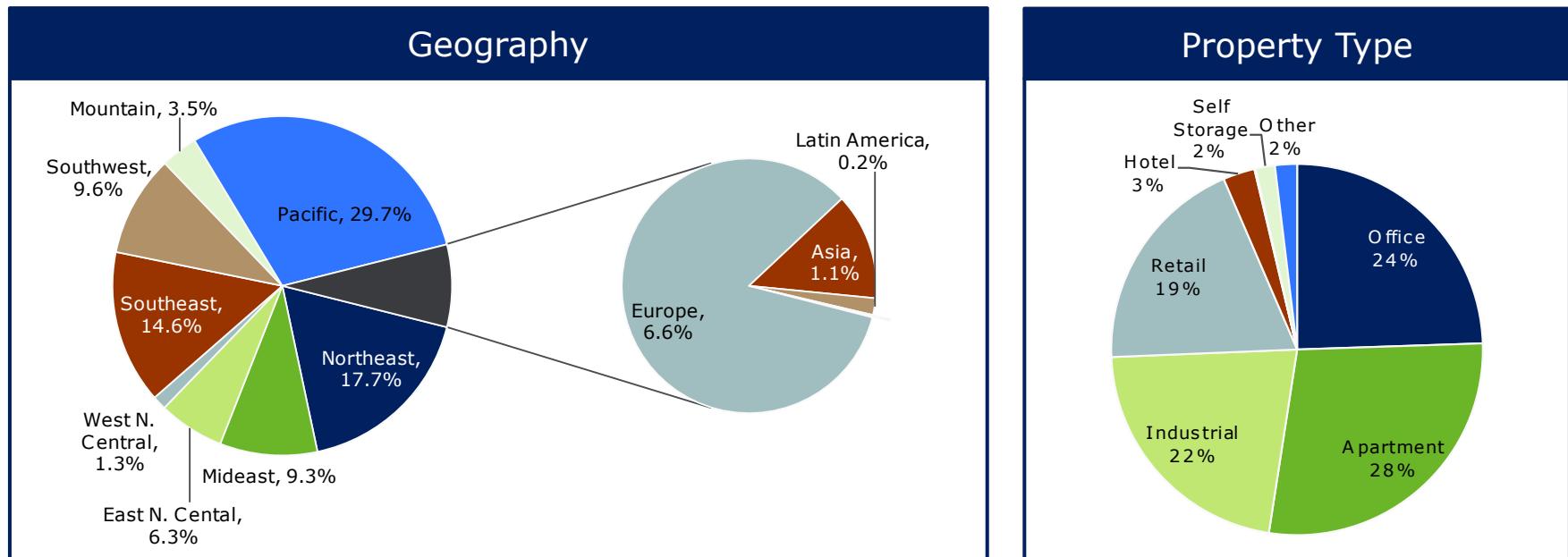
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American Realty Advisors	1	\$177.75
Clarion Partners	1	\$155.13
Gerding Edlen	3	\$146.26
<b>Total Top Ten</b>		<b>\$2,120.17</b>
76% of Total Portfolio (by Total Exposure)		



Data as of December 31, 2019. Total Exposure is calculated as current net asset value plus any unfunded capital commitments.

# PORTFOLIO DIVERSIFICATION

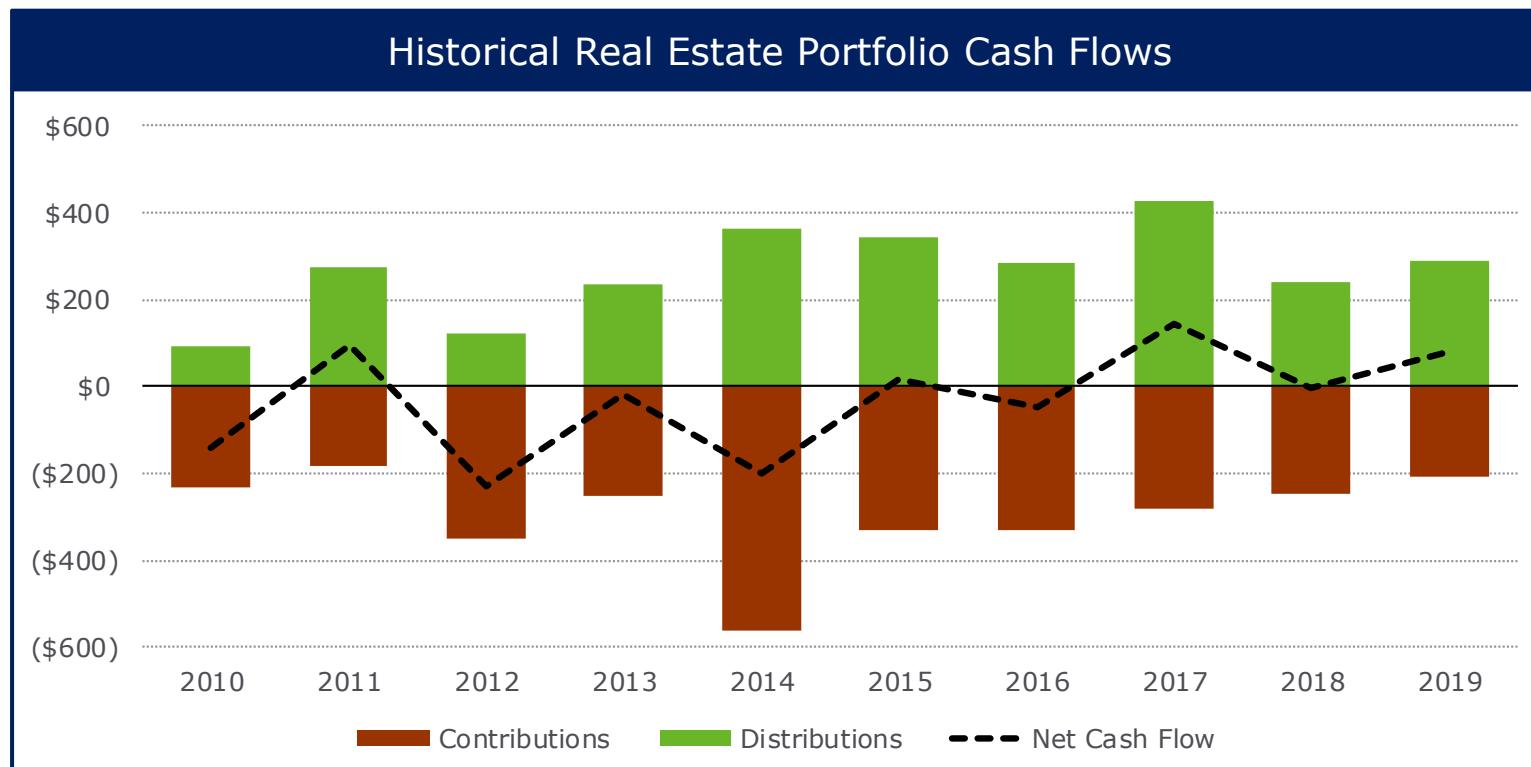
- **The State of Connecticut real estate portfolio is broadly diversified by property type and geography within the U.S.**
- **The portfolio is primarily invested the four main property types (apartments, industrial, office, and retail)**
  - Hotel assets, self-storage, and other property types account for approximately 7% of the overall portfolio
- **The portfolio remains heavily concentrated in the United States**
  - 8% of the portfolio is invested outside the U.S., with the majority of that exposure in Europe



Data as of December 31, 2019. Breakouts provided by Managers.

# 10-YEAR CASH FLOWS

- The chart below illustrates the capital invested, distributed, and net cash flows for the real estate portfolio over the past 10 calendar years
- In the fourth quarter of 2019, the real estate portfolio posted positive net cash flow of approximately \$75.8 million
  - This included approximately \$67.8 million in contributions and approximately \$143.6 million in distributions



Data as of December 31, 2019.

# **DETAILED REAL ESTATE PERFORMANCE**

*FOURTH QUARTER 2019*

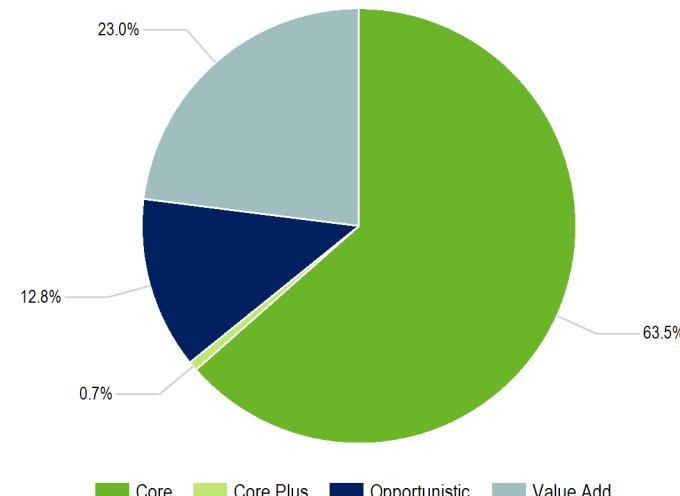
NEPC, LLC

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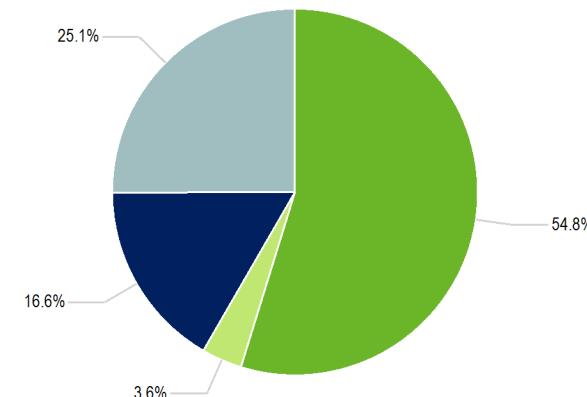
## State of Connecticut

# ANALYSIS BY STRATEGY

Real Estate Valuation by Strategy



Real Estate Fund Exposure by Strategy



Core Core Plus Opportunistic Value Add

Core Core Plus Opportunistic Value Add

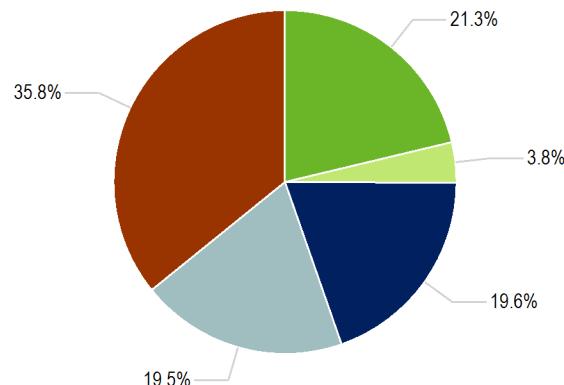
Investments		Commitments			Contributions & Distributions			Valuations				Performance		
Investment Strategy		Commitment	Unfunded Commitment	Call Ratio	Cumulative Contributions	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	Fund Exposure	DPI	TVPI	IRR
Total Core		\$1,628.53	\$43.15	1.19	\$1,930.50	\$1.73	\$1,168.87	\$1,486.60	\$2,655.47	\$723.25	\$1,529.75	0.60	1.37	6.57%
Total Core Plus		\$100.00	\$83.48	0.17	\$16.52	\$0.00	\$0.00	\$16.40	\$16.40	-\$0.12	\$99.88	0.00	0.99	-1.33%
Total Opportunistic		\$1,478.13	\$163.97	0.97	\$1,439.49	\$25.92	\$1,546.30	\$299.17	\$1,845.48	\$380.07	\$463.14	1.06	1.26	5.43%
Total Value Add		\$1,001.42	\$161.07	0.86	\$865.98	\$25.62	\$502.73	\$538.71	\$1,041.44	\$149.84	\$699.78	0.56	1.17	3.82%
Total		\$4,208.08	\$451.66	1.01	\$4,252.49	\$53.26	\$3,217.91	\$2,340.88	\$5,558.78	\$1,253.03	\$2,792.54	0.75	1.29	5.67%



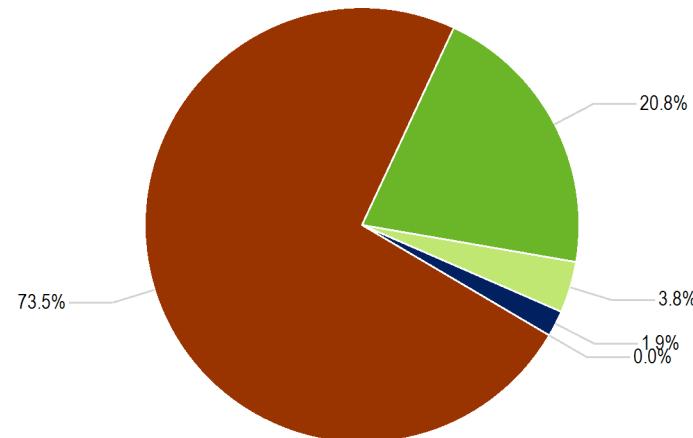
## State of Connecticut

# ANALYSIS BY LIFECYCLE

Commitment by Lifecycle



Valuation by Lifecycle



Investing   Harvesting   Liquidating   Completed   Open End

Investing   Harvesting   Liquidating   Completed   Open End

Investments		Commitments			Contributions & Distributions			Valuations			Performance		
Lifecycle		Commitment	Unfunded Commitment	Call Ratio	Cumulative Contributions	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Total Investing		\$895.00	\$369.33	0.63	\$564.39	\$14.94	\$226.16	\$486.37	\$712.53	\$133.20	0.39	1.23	13.87%
Total Harvesting		\$160.00	\$7.39	1.02	\$162.58	\$0.90	\$130.05	\$89.05	\$219.09	\$55.61	0.80	1.34	10.76%
Total Liquidating		\$824.08	\$31.80	1.03	\$847.73	\$28.78	\$1,024.78	\$45.29	\$1,070.07	\$193.56	1.17	1.22	4.25%
Total Completed		\$821.66	\$0.00	1.06	\$868.92	\$4.36	\$903.25	\$0.00	\$903.26	\$29.98	1.03	1.03	0.83%
Total Open End		\$1,507.34	\$43.15	1.20	\$1,808.87	\$4.28	\$933.68	\$1,720.16	\$2,653.83	\$840.68	0.51	1.46	8.42%
Total		\$4,208.08	\$451.66	1.01	\$4,252.49	\$53.26	\$3,217.91	\$2,340.88	\$5,558.78	\$1,253.03	0.75	1.29	5.67%



## State of Connecticut

# ANALYSIS BY VINTAGE YEAR

Commitments By Vintage Year



Investments	Commitments		Contributions & Distributions			Valuations			Performance			
	Vintage Year	Commitment	Unfunded Commitment	Cumulative Contributions	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Total 1998		\$363.13	\$0.00	\$409.49	\$0.15	\$539.88	\$0.00	\$539.88	\$130.24	1.32	1.32	5.24%
Total 2004		\$40.00	\$0.00	\$40.76	\$3.98	\$57.01	\$0.00	\$57.01	\$12.27	1.27	1.27	9.36%
Total 2005		\$343.53	\$5.06	\$339.38	\$2.72	\$302.98	\$0.26	\$303.24	-\$38.86	0.89	0.89	-2.56%
Total 2006		\$200.00	\$0.00	\$201.00	\$7.82	\$122.48	\$8.04	\$130.52	-\$78.30	0.59	0.63	-5.44%
Total 2007		\$450.00	\$4.91	\$451.81	\$12.32	\$410.16	\$293.94	\$704.10	\$239.97	0.88	1.52	5.85%
Total 2008		\$325.00	\$0.00	\$325.16	\$0.00	\$188.50	\$269.32	\$457.82	\$132.66	0.58	1.41	5.24%
Total 2009		\$200.00	\$11.26	\$226.29	\$6.15	\$307.04	\$19.87	\$326.90	\$94.46	1.32	1.41	12.77%
Total 2010		\$50.00	\$0.00	\$50.59	\$0.00	\$66.65	\$0.00	\$66.65	\$16.06	1.32	1.32	10.96%
Total 2011		\$329.08	\$48.04	\$561.17	\$0.00	\$523.43	\$199.72	\$723.16	\$161.99	0.93	1.29	10.27%
Total 2012		\$150.00	\$0.00	\$223.19	\$0.29	\$123.21	\$177.75	\$300.96	\$77.47	0.55	1.35	12.80%
Total 2013		\$325.00	\$3.50	\$321.50	\$0.00	\$110.50	\$396.28	\$506.78	\$185.28	0.34	1.58	10.18%
Total 2014		\$457.34	\$3.89	\$463.42	\$4.97	\$212.63	\$424.31	\$636.94	\$168.55	0.45	1.36	8.86%
Total 2015		\$270.00	\$33.75	\$256.60	\$5.37	\$169.58	\$184.65	\$354.23	\$92.26	0.65	1.35	16.67%
Total 2016		\$75.00	\$7.66	\$67.34	\$5.02	\$47.52	\$47.50	\$95.02	\$22.66	0.66	1.31	11.88%
Total 2017		\$215.00	\$99.14	\$121.84	\$3.46	\$18.55	\$133.62	\$152.17	\$26.86	0.15	1.21	12.91%
Total 2018		\$240.00	\$90.71	\$161.68	\$1.22	\$17.79	\$155.37	\$173.16	\$10.26	0.11	1.06	7.89%
Total 2019		\$175.00	\$143.75	\$31.25	-\$0.21	\$0.00	\$30.23	\$30.23	-\$0.80	0.00	0.97	-8.07%
Total		\$4,208.08	\$451.66	\$4,252.49	\$53.26	\$3,217.91	\$2,340.88	\$5,558.78	\$1,253.03	0.75	1.29	5.67%



December 31, 2019

APPENDIX 1:  
**INVESTMENT LEVEL PERFORMANCE**  
*AS OF DECEMBER 31, 2019*

NEPC, LLC

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## State of Connecticut

# RETURN SUMMARY

Investments			Trailing Period Returns (IRR) %						
Investment Name	Vintage Year	Commitment	(Qtr)	(YTD)	(1 Yr)	(3 Yrs)	(5 Yrs)	(10 Yrs)	SI IRR
AEW Core Real Estate Separate Account	2005	\$243.53							0.16%
AEW Partners III, L.P.	1998	\$100.00							8.77%
American Core Realty Separate Account	2012	\$150.00	3.65%	9.87%	9.87%	9.09%	13.11%		12.80%
Apollo Real Estate Investment Fund III, L.P.	1998	\$75.00	-16.22%	-16.22%	-16.22%	16.61%	28.89%	12.16%	6.25%
Artemis Real Estate Partners Income & Growth Fund, L.P.	2019	\$100.00							-1.33%
Barings Core Property Fund, L.P.	2008	\$250.00	1.45%	6.43%	6.43%	6.73%	8.82%	9.48%	6.48%
BIG Real Estate Fund I, L.P.	2018	\$65.00	2.72%	9.74%	9.74%				10.22%
Blackstone Real Estate Partners Europe III, L.P.	2009	\$50.00	5.43%	-2.99%	-2.99%	15.34%	4.49%	11.92%	10.90%
Blackstone Real Estate Partners Europe V, L.P.	2017	\$50.00	6.12%	12.23%	12.23%				14.04%
Blackstone Real Estate Partners VI, L.P.	2007	\$100.00	6.49%	27.73%	27.73%	18.91%	7.95%	25.90%	13.31%
Blackstone Real Estate Partners VIII, L.P.	2015	\$100.00	5.55%	15.42%	15.42%	15.22%			15.91%
Blackstone Real Estate Special Situations Fund II, L.P.	2011	\$74.08	-10.80%	-10.17%	-10.17%	-3.97%	-0.20%		9.32%
Canyon-Johnson Urban Fund II, L.P.	2005	\$50.00	0.39%	-2.40%	-2.40%	2.76%	-21.80%	-7.59%	-10.44%
Canyon-Johnson Urban Fund III, L.P.	2010	\$50.00		-92.18%	-92.18%	14.81%	12.79%		10.96%
Capri Select Income II, L.P.	2005	\$30.00	-1.20%	276.49%	276.49%	45.00%	7.76%	12.71%	-9.88%
Colony Realty Partners II, L.P.	2006	\$50.00							-13.75%
Covenant Apartment Fund IX, L.P.	2018	\$50.00	2.07%	4.06%	4.06%				-0.10%
Covenant Apartment Fund V (Institutional), L.P.	2007	\$25.00							2.90%
Covenant Apartment Fund VI (Institutional), L.P.	2008	\$25.00							13.50%
Covenant Apartment Fund VIII, L.P.	2015	\$30.00	3.16%	39.13%	39.13%	22.90%			20.11%
Crow Holdings Realty Partners VII, L.P.	2016	\$75.00	1.68%	8.37%	8.37%	13.81%			11.88%
Crow Holdings Realty Partners VIII, L.P.	2018	\$75.00	3.07%	14.44%	14.44%				11.88%
Cypress Acquisition Partners Retail Fund, L.P.	2014	\$50.00	-6.88%	-20.99%	-20.99%	-9.33%	-3.11%		-1.21%
Gerding Edlen Green Cities II, L.P.	2014	\$30.00	4.70%	5.56%	5.56%	0.44%	6.62%		9.93%
Gerding Edlen Green Cities III, L.P.	2017	\$50.00	2.76%	5.12%	5.12%				9.19%
Gerding Edlen Green Cities IV, L.P.	2019	\$75.00	2.34%						-10.84%
Hart Realty Advisors-Core Separate Account	2011	\$180.00	-0.27%	3.86%	3.86%	3.94%	6.95%		8.45%
IL & FS India Realty Fund II, LLC	2008	\$50.00	-0.04%	3.14%	3.14%	-28.18%	-17.37%	-6.80%	-7.79%
JP Morgan Strategic Property Fund	2014	\$90.00	0.04%	1.40%	1.40%	5.72%			7.60%
Landmark Real Estate Fund VII, L.P.	2015	\$40.00	-0.44%	-1.38%	-1.38%	3.59%			10.33%
Landmark Real Estate Partners VIII, L.P.	2017	\$65.00	0.03%	4.95%	4.95%				21.21%
Lion Industrial Trust	2014	\$102.34	2.30%	13.30%	13.30%	14.64%			14.09%



December 31, 2019

## State of Connecticut

# RETURN SUMMARY

Investments			Trailing Period Returns (IRR) %						
Investment Name	Vintage Year	Commitment	(Qtr)	(YTD)	(1 Yr)	(3 Yrs)	(5 Yrs)	(10 Yrs)	SI IRR
Lone Star Real Estate Fund II (U.S.), L.P.	2011	\$75.00	1.33%	10.61%	10.61%	3.75%	20.92%		25.46%
MacFarlane Urban Real Estate Fund II, L.P.	2007	\$100.00							-16.47%
New Boston Real Estate Individual and Institutional Investment Fund, L.P. IV	1998	\$15.00							3.10%
Prime Property Fund, LLC	2007	\$225.00	1.53%	6.16%	6.16%	7.67%	9.59%	12.31%	7.99%
PRISA I, L.P.	2014	\$185.00	1.07%	5.32%	5.32%	6.87%	8.35%		8.38%
Rockwood Capital Real Estate Partners Fund V, L.P.	2004	\$40.00							9.36%
Rockwood Capital Real Estate Partners Fund VI, L.P.	2005	\$20.00	-0.41%	-4.93%	-4.93%	-0.37%	-11.70%	14.29%	-0.84%
Rockwood Capital Real Estate Partners Fund VII, L.P.	2006	\$50.00	-12.56%	-26.02%	-26.02%	-11.66%	0.57%	11.25%	-6.43%
Starwood Distressed Opportunity Fund IX Global, L.P.	2013	\$50.00	-0.97%	1.42%	1.42%	3.92%	10.08%		19.16%
Starwood Global Opportunity Fund VII, L.P.	2006	\$50.00	1.14%	29.71%	29.71%	6.12%	-2.45%	3.70%	-2.32%
Starwood Global Opportunity Fund VIII, L.P.	2009	\$50.00	3.27%	11.70%	11.70%	1.01%	-0.38%	13.27%	12.38%
Starwood Global Opportunity Fund X, L.P.	2015	\$100.00	0.40%	5.93%	5.93%	12.03%			18.76%
Starwood Opportunity Fund XI Global, L.P.	2017	\$50.00	15.12%	51.32%	51.32%				57.20%
Trumbull Property Fund, L.P.	2013	\$75.00	-0.14%	-2.84%	-2.84%	2.90%	5.41%		5.77%
Trumbull Property Income Fund, L.P.	2013	\$50.00	1.40%	5.15%	5.15%	5.51%	7.00%		7.45%
UBS Trumbull Property Growth & Income Fund, L.P.	2013	\$50.00	1.79%	7.66%	7.66%	8.01%	11.98%		12.08%
Urban Strategy America Fund, L.P.	2006	\$50.00	5.55%	-3.31%	-3.31%	0.79%	-0.21%	2.37%	-1.87%
USAA Eagle Real Estate Feeder 1, L.P.	2013	\$100.00	1.45%	5.29%	5.29%	6.67%	9.94%		11.01%
USAA Eagle Real Estate Feeder 1, L.P.	2018	\$50.00	1.41%	5.04%	5.04%				5.35%
Walton Street Real Estate Fund II, L.P.	1998	\$73.13							13.03%
Westport Senior Living Investment Fund, L.P.	1998	\$100.00							-13.20%
WLR IV PPIP Co-Invest, L.P.	2009	\$100.00	-4.93%	-2.66%	-2.66%	2.60%	8.56%	14.73%	14.43%
<b>Total</b>		<b>\$4,208.08</b>	<b>1.63%</b>	<b>6.20%</b>	<b>6.20%</b>	<b>7.09%</b>	<b>8.50%</b>	<b>9.99%</b>	<b>5.67%</b>



## State of Connecticut

# ANALYSIS BY FUND

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
AEW Core Real Estate Separate Account	2005	\$243.53	\$0.00	\$243.53	\$0.00	\$245.21	\$0.00	\$245.21	\$1.69	1.01	1.01	0.16%
AEW Partners III, L.P.	1998	\$100.00	\$0.00	\$101.69	\$0.00	\$150.65	\$0.00	\$150.65	\$48.95	1.48	1.48	8.77%
American Core Realty Separate Account	2012	\$150.00	\$0.00	\$223.19	\$0.29	\$123.21	\$177.75	\$300.96	\$77.47	0.55	1.35	12.80%
Apollo Real Estate Investment Fund III, L.P.	1998	\$75.00	\$0.00	\$78.82	\$0.00	\$116.21	\$0.00	\$116.21	\$37.39	1.47	1.47	6.25%
Artemis Real Estate Partners Income & Growth Fund, L.P.	2019	\$100.00	\$83.48	\$16.52	\$0.00	\$0.00	\$16.40	\$16.40	-\$0.12	0.00	0.99	-1.33%
Barings Core Property Fund, L.P.	2008	\$250.00	\$0.00	\$250.00	\$0.00	\$124.82	\$263.56	\$388.38	\$138.38	0.50	1.55	6.48%
BIG Real Estate Fund I, L.P.	2018	\$65.00	\$35.48	\$41.91	\$0.62	\$16.77	\$28.99	\$45.76	\$3.23	0.39	1.08	10.22%
Blackstone Real Estate Partners Europe III, L.P.	2009	\$50.00	\$6.62	\$45.94	\$6.15	\$69.23	\$8.21	\$77.44	\$25.35	1.33	1.49	10.90%
Blackstone Real Estate Partners Europe V, L.P.	2017	\$50.00	\$11.52	\$38.95	\$2.16	\$2.80	\$47.00	\$49.80	\$8.70	0.07	1.21	14.04%
Blackstone Real Estate Partners VI, L.P.	2007	\$100.00	\$4.91	\$99.61	\$12.09	\$216.06	\$7.69	\$223.74	\$112.04	1.93	2.00	13.31%
Blackstone Real Estate Partners VIII, L.P.	2015	\$100.00	\$19.83	\$100.52	\$5.45	\$39.67	\$101.52	\$141.18	\$35.22	0.37	1.33	15.91%
Blackstone Real Estate Special Situations Fund II, L.P.	2011	\$74.08	\$2.03	\$72.05	\$0.00	\$84.83	\$1.28	\$86.12	\$14.07	1.18	1.20	9.32%
Canyon-Johnson Urban Fund II, L.P.	2005	\$50.00	\$5.06	\$44.94	\$0.00	\$19.87	\$0.17	\$20.04	-\$24.90	0.44	0.45	-10.44%
Canyon-Johnson Urban Fund III, L.P.	2010	\$50.00	\$0.00	\$50.59	\$0.00	\$66.65	\$0.00	\$66.65	\$16.06	1.32	1.32	10.96%
Capri Select Income II, L.P.	2005	\$30.00	\$0.00	\$30.45	\$0.00	\$15.88	\$0.01	\$15.89	-\$14.56	0.52	0.52	-9.88%
Colony Realty Partners II, L.P.	2006	\$50.00	\$0.00	\$51.00	\$0.00	\$13.19	\$0.00	\$13.19	-\$37.81	0.26	0.26	-13.75%
Covenant Apartment Fund IX, L.P.	2018	\$50.00	\$27.50	\$22.50	\$0.60	\$0.00	\$23.08	\$23.08	-\$0.02	0.00	1.00	-0.10%
Covenant Apartment Fund V (Institutional), L.P.	2007	\$25.00	\$0.00	\$25.00	\$0.23	\$30.28	\$0.00	\$30.28	\$5.05	1.20	1.20	2.90%
Covenant Apartment Fund VI (Institutional), L.P.	2008	\$25.00	\$0.00	\$25.16	\$0.00	\$39.52	\$0.00	\$39.52	\$14.36	1.57	1.57	13.50%
Covenant Apartment Fund VIII, L.P.	2015	\$30.00	\$0.00	\$30.00	-\$0.08	\$27.29	\$18.59	\$45.88	\$15.95	0.91	1.53	20.11%
Crow Holdings Realty Partners VII, L.P.	2016	\$75.00	\$7.66	\$67.34	\$5.02	\$47.52	\$47.50	\$95.02	\$22.66	0.66	1.31	11.88%
Crow Holdings Realty Partners VIII, L.P.	2018	\$75.00	\$22.06	\$52.94	\$0.00	\$1.02	\$56.89	\$57.91	\$4.97	0.02	1.09	11.88%
Cypress Acquisition Partners Retail Fund, L.P.	2014	\$50.00	\$1.91	\$56.55	\$0.00	\$14.10	\$40.35	\$54.45	-\$2.10	0.25	0.96	-1.21%
Gerding Edlen Green Cities II, L.P.	2014	\$30.00	\$1.98	\$29.53	\$0.98	\$29.46	\$13.11	\$42.56	\$12.05	0.97	1.39	9.93%
Gerding Edlen Green Cities III, L.P.	2017	\$50.00	\$2.19	\$48.69	\$1.39	\$6.22	\$54.87	\$61.09	\$11.01	0.12	1.22	9.19%
Gerding Edlen Green Cities IV, L.P.	2019	\$75.00	\$60.27	\$14.73	-\$0.21	\$0.00	\$13.84	\$13.84	-\$0.68	0.00	0.95	-10.84%
Hart Realty Advisors-Core Separate Account	2011	\$180.00	\$37.47	\$414.02	\$0.00	\$329.17	\$196.05	\$525.21	\$111.20	0.80	1.27	8.45%
IL & FS India Realty Fund II, LLC	2008	\$50.00	\$0.00	\$50.00	\$0.00	\$24.16	\$5.76	\$29.92	-\$20.08	0.48	0.60	-7.79%
JP Morgan Strategic Property Fund	2014	\$90.00	\$0.00	\$90.00	\$1.43	\$120.44	\$0.00	\$120.44	\$29.01	1.32	1.32	7.60%
Landmark Real Estate Fund VII, L.P.	2015	\$40.00	\$3.92	\$36.08	\$0.00	\$25.40	\$18.49	\$43.88	\$7.80	0.70	1.22	10.33%
Landmark Real Estate Partners VIII, L.P.	2017	\$65.00	\$43.99	\$24.68	-\$0.08	\$7.34	\$21.03	\$28.38	\$3.77	0.30	1.15	21.21%



December 31, 2019

## State of Connecticut

# ANALYSIS BY FUND

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Lion Industrial Trust	2014	\$102.34	\$0.00	\$102.34	\$2.56	\$17.68	\$155.13	\$172.81	\$67.91	0.17	1.65	14.09%
Lone Star Real Estate Fund II (U.S.), L.P.	2011	\$75.00	\$8.54	\$75.11	\$0.00	\$109.43	\$2.39	\$111.83	\$36.72	1.46	1.49	25.46%
MacFarlane Urban Real Estate Fund II, L.P.	2007	\$100.00	\$0.00	\$102.20	\$0.00	\$27.72	\$0.00	\$27.72	-\$74.49	0.27	0.27	-16.47%
New Boston Real Estate Individual and Institutional Investment Fund, L.P. IV	1998	\$15.00	\$0.00	\$15.00	\$0.00	\$17.34	\$0.00	\$17.34	\$2.34	1.16	1.16	3.10%
Prime Property Fund, LLC	2007	\$225.00	\$0.00	\$225.00	\$0.00	\$136.11	\$286.25	\$422.37	\$197.37	0.60	1.88	7.99%
PRISA I, L.P.	2014	\$185.00	\$0.00	\$185.00	\$0.00	\$30.96	\$215.72	\$246.68	\$61.68	0.17	1.33	8.38%
Rockwood Capital Real Estate Partners Fund V, L.P.	2004	\$40.00	\$0.00	\$40.76	\$3.98	\$57.01	\$0.00	\$57.01	\$12.27	1.27	1.27	9.36%
Rockwood Capital Real Estate Partners Fund VI, L.P.	2005	\$20.00	\$0.00	\$20.46	\$2.72	\$22.01	\$0.08	\$22.09	-\$1.09	0.95	0.95	-0.84%
Rockwood Capital Real Estate Partners Fund VII, L.P.	2006	\$50.00	\$0.00	\$50.00	\$7.82	\$27.48	\$6.00	\$33.47	-\$24.34	0.48	0.58	-6.43%
Starwood Distressed Opportunity Fund IX Global, L.P.	2013	\$50.00	\$3.50	\$46.50	\$0.00	\$59.20	\$17.00	\$76.21	\$29.71	1.27	1.64	19.16%
Starwood Global Opportunity Fund VII, L.P.	2006	\$50.00	\$0.00	\$50.00	\$0.00	\$39.01	\$1.48	\$40.49	-\$9.51	0.78	0.81	-2.32%
Starwood Global Opportunity Fund VIII, L.P.	2009	\$50.00	\$4.64	\$52.98	\$0.00	\$76.27	\$6.84	\$83.11	\$30.13	1.44	1.57	12.38%
Starwood Global Opportunity Fund X, L.P.	2015	\$100.00	\$10.00	\$90.00	\$0.00	\$77.23	\$46.05	\$123.29	\$33.29	0.86	1.37	18.76%
Starwood Opportunity Fund XI Global, L.P.	2017	\$50.00	\$41.43	\$9.52	\$0.00	\$2.19	\$10.72	\$12.91	\$3.39	0.23	1.36	57.20%
Trumbull Property Fund, L.P.	2013	\$75.00	\$0.00	\$75.00	\$0.00	\$13.82	\$84.82	\$98.64	\$23.64	0.18	1.32	5.77%
Trumbull Property Income Fund, L.P.	2013	\$50.00	\$0.00	\$50.00	\$0.00	\$9.99	\$62.74	\$72.72	\$22.72	0.20	1.45	7.45%
UBS Trumbull Property Growth & Income Fund, L.P.	2013	\$50.00	\$0.00	\$50.00	\$0.00	\$8.22	\$78.44	\$86.65	\$36.65	0.16	1.73	12.08%
Urban Strategy America Fund, L.P.	2006	\$50.00	\$0.00	\$50.00	\$0.00	\$42.80	\$0.56	\$43.36	-\$6.64	0.86	0.87	-1.87%
USAA Eagle Real Estate Feeder 1, L.P.	2013	\$100.00	\$0.00	\$100.00	\$0.00	\$19.27	\$153.28	\$172.56	\$72.56	0.19	1.73	11.01%
USAA Eagle Real Estate Feeder 1, L.P.	2018	\$50.00	\$5.68	\$44.32	\$0.00	\$0.00	\$46.41	\$46.41	\$2.09	0.00	1.05	5.35%
Walton Street Real Estate Fund II, L.P.	1998	\$73.13	\$0.00	\$73.13	\$0.15	\$171.65	\$0.00	\$171.65	\$98.37	2.34	2.34	13.03%
Westport Senior Living Investment Fund, L.P.	1998	\$100.00	\$0.00	\$140.84	\$0.00	\$84.03	\$0.00	\$84.03	-\$56.81	0.60	0.60	-13.20%
WLR IV PPIP Co-Invest, L.P.	2009	\$100.00	\$0.00	\$127.38	\$0.00	\$161.54	\$4.82	\$166.35	\$38.98	1.27	1.31	14.43%
<b>Total</b>		<b>\$4,208.08</b>	<b>\$451.66</b>	<b>\$4,252.49</b>	<b>\$53.26</b>	<b>\$3,217.91</b>	<b>\$2,340.88</b>	<b>\$5,558.78</b>	<b>\$1,253.03</b>	<b>0.75</b>	<b>1.29</b>	<b>5.67%</b>



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# ANALYSIS BY LIFECYCLE

Investments		Commitments			Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Call Ratio	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
<b>Investing</b>													
Artemis Real Estate Partners Income & Growth Fund, L.P.	2019	\$100.00	\$83.48	0.17	\$16.52	\$0.00	\$0.00	\$16.40	\$16.40	-\$0.12	0.00	0.99	-1.33%
BIG Real Estate Fund I, L.P.	2018	\$65.00	\$35.48	0.64	\$41.91	\$0.62	\$16.77	\$28.99	\$45.76	\$3.23	0.39	1.08	10.22%
Blackstone Real Estate Partners Europe V, L.P.	2017	\$50.00	\$11.52	0.78	\$38.95	\$2.16	\$2.80	\$47.00	\$49.80	\$8.70	0.07	1.21	14.04%
Blackstone Real Estate Partners VIII, L.P.	2015	\$100.00	\$19.83	1.01	\$100.52	\$5.45	\$39.67	\$101.52	\$141.18	\$35.22	0.37	1.33	15.91%
Covenant Apartment Fund IX, L.P.	2018	\$50.00	\$27.50	0.45	\$22.50	\$0.60	\$0.00	\$23.08	\$23.08	-\$0.02	0.00	1.00	-0.10%
Crow Holdings Realty Partners VII, L.P.	2016	\$75.00	\$7.66	0.90	\$67.34	\$5.02	\$47.52	\$47.50	\$95.02	\$22.66	0.66	1.31	11.88%
Crow Holdings Realty Partners VIII, L.P.	2018	\$75.00	\$22.06	0.71	\$52.94	\$0.00	\$1.02	\$56.89	\$57.91	\$4.97	0.02	1.09	11.88%
Gerding Edlen Green Cities III, L.P.	2017	\$50.00	\$2.19	0.97	\$48.69	\$1.39	\$6.22	\$54.87	\$61.09	\$11.01	0.12	1.22	9.19%
Gerding Edlen Green Cities IV, L.P.	2019	\$75.00	\$60.27	0.20	\$14.73	-\$0.21	\$0.00	\$13.84	\$13.84	-\$0.68	0.00	0.95	-10.84%
Landmark Real Estate Fund VII, L.P.	2015	\$40.00	\$3.92	0.90	\$36.08	\$0.00	\$25.40	\$18.49	\$43.88	\$7.80	0.70	1.22	10.33%
Landmark Real Estate Partners VIII, L.P.	2017	\$65.00	\$43.99	0.38	\$24.68	-\$0.08	\$7.34	\$21.03	\$28.38	\$3.77	0.30	1.15	21.21%
Starwood Global Opportunity Fund X, L.P.	2015	\$100.00	\$10.00	0.90	\$90.00	\$0.00	\$77.23	\$46.05	\$123.29	\$33.29	0.86	1.37	18.76%
Starwood Opportunity Fund XI Global, L.P.	2017	\$50.00	\$41.43	0.19	\$9.52	\$0.00	\$2.19	\$10.72	\$12.91	\$3.39	0.23	1.36	57.20%
<b>Total Investing</b>		<b>\$895.00</b>	<b>\$369.33</b>	<b>0.63</b>	<b>\$564.39</b>	<b>\$14.94</b>	<b>\$226.16</b>	<b>\$486.37</b>	<b>\$712.53</b>	<b>\$133.20</b>	<b>0.39</b>	<b>1.23</b>	<b>13.87%</b>
<b>Harvesting</b>													
Covenant Apartment Fund VIII, L.P.	2015	\$30.00	\$0.00	1.00	\$30.00	-\$0.08	\$27.29	\$18.59	\$45.88	\$15.95	0.91	1.53	20.11%
Cypress Acquisition Partners Retail Fund, L.P.	2014	\$50.00	\$1.91	1.13	\$56.55	\$0.00	\$14.10	\$40.35	\$54.45	-\$2.10	0.25	0.96	-1.21%
Gerding Edlen Green Cities II, L.P.	2014	\$30.00	\$1.98	0.98	\$29.53	\$0.98	\$29.46	\$13.11	\$42.56	\$12.05	0.97	1.39	9.93%
Starwood Distressed Opportunity Fund IX Global, L.P.	2013	\$50.00	\$3.50	0.93	\$46.50	\$0.00	\$59.20	\$17.00	\$76.21	\$29.71	1.27	1.64	19.16%
<b>Total Harvesting</b>		<b>\$160.00</b>	<b>\$7.39</b>	<b>1.02</b>	<b>\$162.58</b>	<b>\$0.90</b>	<b>\$130.05</b>	<b>\$89.05</b>	<b>\$219.09</b>	<b>\$55.61</b>	<b>0.80</b>	<b>1.34</b>	<b>10.76%</b>
<b>Liquidating</b>													
Apollo Real Estate Investment Fund III, L.P.	1998	\$75.00	\$0.00	1.05	\$78.82	\$0.00	\$116.21	\$0.00	\$116.21	\$37.39	1.47	1.47	6.25%
Blackstone Real Estate Partners Europe III, L.P.	2009	\$50.00	\$6.62	0.92	\$45.94	\$6.15	\$69.23	\$8.21	\$77.44	\$25.35	1.33	1.49	10.90%
Blackstone Real Estate Partners VI, L.P.	2007	\$100.00	\$4.91	1.00	\$99.61	\$12.09	\$216.06	\$7.69	\$223.74	\$112.04	1.93	2.00	13.31%
Blackstone Real Estate Special Situations Fund II, L.P.	2011	\$74.08	\$2.03	0.97	\$72.05	\$0.00	\$84.83	\$1.28	\$86.12	\$14.07	1.18	1.20	9.32%
Canyon-Johnson Urban Fund II, L.P.	2005	\$50.00	\$5.06	0.90	\$44.94	\$0.00	\$19.87	\$0.17	\$20.04	-\$24.90	0.44	0.45	-10.44%
Capri Select Income II, L.P.	2005	\$30.00	\$0.00	1.01	\$30.45	\$0.00	\$15.88	\$0.01	\$15.89	-\$14.56	0.52	0.52	-9.88%
IL & FS India Realty Fund II, LLC	2008	\$50.00	\$0.00	1.00	\$50.00	\$0.00	\$24.16	\$5.76	\$29.92	-\$20.08	0.48	0.60	-7.79%
Lone Star Real Estate Fund II (U.S.), L.P.	2011	\$75.00	\$8.54	1.00	\$75.11	\$0.00	\$109.43	\$2.39	\$111.83	\$36.72	1.46	1.49	25.46%
Rockwood Capital Real Estate Partners Fund VI, L.P.	2005	\$20.00	\$0.00	1.02	\$20.46	\$2.72	\$22.01	\$0.08	\$22.09	-\$1.09	0.95	0.95	-0.84%



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Investments		Commitments			Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Call Ratio	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Rockwood Capital Real Estate Partners Fund VII, L.P.	2006	\$50.00	\$0.00	1.00	\$50.00	\$7.82	\$27.48	\$6.00	\$33.47	-\$24.34	0.48	0.58	-6.43%
Starwood Global Opportunity Fund VII, L.P.	2006	\$50.00	\$0.00	1.00	\$50.00	\$0.00	\$39.01	\$1.48	\$40.49	-\$9.51	0.78	0.81	-2.32%
Starwood Global Opportunity Fund VIII, L.P.	2009	\$50.00	\$4.64	1.06	\$52.98	\$0.00	\$76.27	\$6.84	\$83.11	\$30.13	1.44	1.57	12.38%
Urban Strategy America Fund, L.P.	2006	\$50.00	\$0.00	1.00	\$50.00	\$0.00	\$42.80	\$0.56	\$43.36	-\$6.64	0.86	0.87	-1.87%
WLR IV PPIP Co-Invest, L.P.	2009	\$100.00	\$0.00	1.27	\$127.38	\$0.00	\$161.54	\$4.82	\$166.35	\$38.98	1.27	1.31	14.43%
<b>Total Liquidating</b>		<b>\$824.08</b>	<b>\$31.80</b>	<b>1.03</b>	<b>\$847.73</b>	<b>\$28.78</b>	<b>\$1,024.78</b>	<b>\$45.29</b>	<b>\$1,070.07</b>	<b>\$193.56</b>	<b>1.17</b>	<b>1.22</b>	<b>4.25%</b>
<b>Completed</b>													
AEW Core Real Estate Separate Account	2005	\$243.53	\$0.00	1.00	\$243.53	\$0.00	\$245.21	\$0.00	\$245.21	\$1.69	1.01	1.01	0.16%
AEW Partners III, L.P.	1998	\$100.00	\$0.00	1.02	\$101.69	\$0.00	\$150.65	\$0.00	\$150.65	\$48.95	1.48	1.48	8.77%
Canyon-Johnson Urban Fund III, L.P.	2010	\$50.00	\$0.00	1.01	\$50.59	\$0.00	\$66.65	\$0.00	\$66.65	\$16.06	1.32	1.32	10.96%
Colony Realty Partners II, L.P.	2006	\$50.00	\$0.00	1.02	\$51.00	\$0.00	\$13.19	\$0.00	\$13.19	-\$37.81	0.26	0.26	-13.75%
Covenant Apartment Fund V (Institutional), L.P.	2007	\$25.00	\$0.00	1.00	\$25.00	\$0.23	\$30.28	\$0.00	\$30.28	\$5.05	1.20	1.20	2.90%
Covenant Apartment Fund VI (Institutional), L.P.	2008	\$25.00	\$0.00	1.01	\$25.16	\$0.00	\$39.52	\$0.00	\$39.52	\$14.36	1.57	1.57	13.50%
MacFarlane Urban Real Estate Fund II, L.P.	2007	\$100.00	\$0.00	1.02	\$102.20	\$0.00	\$27.72	\$0.00	\$27.72	-\$74.49	0.27	0.27	-16.47%
New Boston Real Estate Individual and Institutional Investment Fund, L.P. IV	1998	\$15.00	\$0.00	1.00	\$15.00	\$0.00	\$17.34	\$0.00	\$17.34	\$2.34	1.16	1.16	3.10%
Rockwood Capital Real Estate Partners Fund V, L.P.	2004	\$40.00	\$0.00	1.02	\$40.76	\$3.98	\$57.01	\$0.00	\$57.01	\$12.27	1.27	1.27	9.36%
Walton Street Real Estate Fund II, L.P.	1998	\$73.13	\$0.00	1.00	\$73.13	\$0.15	\$171.65	\$0.00	\$171.65	\$98.37	2.34	2.34	13.03%
Westport Senior Living Investment Fund, L.P.	1998	\$100.00	\$0.00	1.41	\$140.84	\$0.00	\$84.03	\$0.00	\$84.03	-\$56.81	0.60	0.60	-13.20%
<b>Total Completed</b>		<b>\$821.66</b>	<b>\$0.00</b>	<b>1.06</b>	<b>\$868.92</b>	<b>\$4.36</b>	<b>\$903.25</b>	<b>\$0.00</b>	<b>\$903.26</b>	<b>\$29.98</b>	<b>1.03</b>	<b>1.03</b>	<b>0.83%</b>
<b>Open End</b>													
American Core Realty Separate Account	2012	\$150.00	\$0.00	1.49	\$223.19	\$0.29	\$123.21	\$177.75	\$300.96	\$77.47	0.55	1.35	12.80%
Barings Core Property Fund, L.P.	2008	\$250.00	\$0.00	1.00	\$250.00	\$0.00	\$124.82	\$263.56	\$388.38	\$138.38	0.50	1.55	6.48%
Hart Realty Advisors-Core Separate Account	2011	\$180.00	\$37.47	2.30	\$414.02	\$0.00	\$329.17	\$196.05	\$525.21	\$111.20	0.80	1.27	8.45%
JP Morgan Strategic Property Fund	2014	\$90.00	\$0.00	1.00	\$90.00	\$1.43	\$120.44	\$0.00	\$120.44	\$29.01	1.32	1.32	7.60%
Lion Industrial Trust	2014	\$102.34	\$0.00	1.00	\$102.34	\$2.56	\$17.68	\$155.13	\$172.81	\$67.91	0.17	1.65	14.09%
Prime Property Fund, LLC	2007	\$225.00	\$0.00	1.00	\$225.00	\$0.00	\$136.11	\$286.25	\$422.37	\$197.37	0.60	1.88	7.99%
PRISA I, L.P.	2014	\$185.00	\$0.00	1.00	\$185.00	\$0.00	\$30.96	\$215.72	\$246.68	\$61.68	0.17	1.33	8.38%
Trumbull Property Fund, L.P.	2013	\$75.00	\$0.00	1.00	\$75.00	\$0.00	\$13.82	\$84.82	\$98.64	\$23.64	0.18	1.32	5.77%
Trumbull Property Income Fund, L.P.	2013	\$50.00	\$0.00	1.00	\$50.00	\$0.00	\$9.99	\$62.74	\$72.72	\$22.72	0.20	1.45	7.45%



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## State of Connecticut

# ANALYSIS BY LIFECYCLE

Investments		Commitments			Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Call Ratio	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
UBS Trumbull Property Growth & Income Fund, L.P.	2013	\$50.00	\$0.00	1.00	\$50.00	\$0.00	\$8.22	\$78.44	\$86.65	\$36.65	0.16	1.73	12.08%
USAA Eagle Real Estate Feeder 1, L.P.	2013	\$100.00	\$0.00	1.00	\$100.00	\$0.00	\$19.27	\$153.28	\$172.56	\$72.56	0.19	1.73	11.01%
USAA Eagle Real Estate Feeder 1, L.P.	2018	\$50.00	\$5.68	0.89	\$44.32	\$0.00	\$0.00	\$46.41	\$46.41	\$2.09	0.00	1.05	5.35%
<b>Total Open End</b>		<b>\$1,507.34</b>	<b>\$43.15</b>	<b>1.20</b>	<b>\$1,808.87</b>	<b>\$4.28</b>	<b>\$933.68</b>	<b>\$1,720.16</b>	<b>\$2,653.83</b>	<b>\$840.68</b>	<b>0.51</b>	<b>1.46</b>	<b>8.42%</b>
<b>Total</b>		<b>\$4,208.08</b>	<b>\$451.66</b>	<b>1.01</b>	<b>\$4,252.49</b>	<b>\$53.26</b>	<b>\$3,217.91</b>	<b>\$2,340.88</b>	<b>\$5,558.78</b>	<b>\$1,253.03</b>	<b>0.75</b>	<b>1.29</b>	<b>5.67%</b>



## State of Connecticut

# ANALYSIS BY VINTAGE YEAR

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
<b>1998</b>												
AEW Partners III, L.P.	1998	\$100.00	\$0.00	\$101.69	\$0.00	\$150.65	\$0.00	\$150.65	\$48.95	1.48	1.48	8.77%
Apollo Real Estate Investment Fund III, L.P.	1998	\$75.00	\$0.00	\$78.82	\$0.00	\$116.21	\$0.00	\$116.21	\$37.39	1.47	1.47	6.25%
New Boston Real Estate Individual and Institutional Investment Fund, L.P. IV	1998	\$15.00	\$0.00	\$15.00	\$0.00	\$17.34	\$0.00	\$17.34	\$2.34	1.16	1.16	3.10%
Walton Street Real Estate Fund II, L.P.	1998	\$73.13	\$0.00	\$73.13	\$0.15	\$171.65	\$0.00	\$171.65	\$98.37	2.34	2.34	13.03%
Westport Senior Living Investment Fund, L.P.	1998	\$100.00	\$0.00	\$140.84	\$0.00	\$84.03	\$0.00	\$84.03	-\$56.81	0.60	0.60	-13.20%
<b>Total 1998</b>		<b>\$363.13</b>	<b>\$0.00</b>	<b>\$409.49</b>	<b>\$0.15</b>	<b>\$539.88</b>	<b>\$0.00</b>	<b>\$539.88</b>	<b>\$130.24</b>	<b>1.32</b>	<b>1.32</b>	<b>5.24%</b>
<b>2004</b>												
Rockwood Capital Real Estate Partners Fund V, L.P.	2004	\$40.00	\$0.00	\$40.76	\$3.98	\$57.01	\$0.00	\$57.01	\$12.27	1.27	1.27	9.36%
<b>Total 2004</b>		<b>\$40.00</b>	<b>\$0.00</b>	<b>\$40.76</b>	<b>\$3.98</b>	<b>\$57.01</b>	<b>\$0.00</b>	<b>\$57.01</b>	<b>\$12.27</b>	<b>1.27</b>	<b>1.27</b>	<b>9.36%</b>
<b>2005</b>												
AEW Core Real Estate Separate Account	2005	\$243.53	\$0.00	\$243.53	\$0.00	\$245.21	\$0.00	\$245.21	\$1.69	1.01	1.01	0.16%
Canyon-Johnson Urban Fund II, L.P.	2005	\$50.00	\$5.06	\$44.94	\$0.00	\$19.87	\$0.17	\$20.04	-\$24.90	0.44	0.45	-10.44%
Capri Select Income II, L.P.	2005	\$30.00	\$0.00	\$30.45	\$0.00	\$15.88	\$0.01	\$15.89	-\$14.56	0.52	0.52	-9.88%
Rockwood Capital Real Estate Partners Fund VI, L.P.	2005	\$20.00	\$0.00	\$20.46	\$2.72	\$22.01	\$0.08	\$22.09	-\$1.09	0.95	0.95	-0.84%
<b>Total 2005</b>		<b>\$343.53</b>	<b>\$5.06</b>	<b>\$339.38</b>	<b>\$2.72</b>	<b>\$302.98</b>	<b>\$0.26</b>	<b>\$303.24</b>	<b>-\$38.86</b>	<b>0.89</b>	<b>0.89</b>	<b>-2.56%</b>
<b>2006</b>												
Colony Realty Partners II, L.P.	2006	\$50.00	\$0.00	\$51.00	\$0.00	\$13.19	\$0.00	\$13.19	-\$37.81	0.26	0.26	-13.75%
Rockwood Capital Real Estate Partners Fund VII, L.P.	2006	\$50.00	\$0.00	\$50.00	\$7.82	\$27.48	\$6.00	\$33.47	-\$24.34	0.48	0.58	-6.43%
Starwood Global Opportunity Fund VII, L.P.	2006	\$50.00	\$0.00	\$50.00	\$0.00	\$39.01	\$1.48	\$40.49	-\$9.51	0.78	0.81	-2.32%
Urban Strategy America Fund, L.P.	2006	\$50.00	\$0.00	\$50.00	\$0.00	\$42.80	\$0.56	\$43.36	-\$6.64	0.86	0.87	-1.87%
<b>Total 2006</b>		<b>\$200.00</b>	<b>\$0.00</b>	<b>\$201.00</b>	<b>\$7.82</b>	<b>\$122.48</b>	<b>\$8.04</b>	<b>\$130.52</b>	<b>-\$78.30</b>	<b>0.59</b>	<b>0.63</b>	<b>-5.44%</b>
<b>2007</b>												
Blackstone Real Estate Partners VI, L.P.	2007	\$100.00	\$4.91	\$99.61	\$12.09	\$216.06	\$7.69	\$223.74	\$112.04	1.93	2.00	13.31%
Covenant Apartment Fund V (Institutional), L.P.	2007	\$25.00	\$0.00	\$25.00	\$0.23	\$30.28	\$0.00	\$30.28	\$5.05	1.20	1.20	2.90%
MacFarlane Urban Real Estate Fund II, L.P.	2007	\$100.00	\$0.00	\$102.20	\$0.00	\$27.72	\$0.00	\$27.72	-\$74.49	0.27	0.27	-16.47%
Prime Property Fund, LLC	2007	\$225.00	\$0.00	\$225.00	\$0.00	\$136.11	\$286.25	\$422.37	\$197.37	0.60	1.88	7.99%
<b>Total 2007</b>		<b>\$450.00</b>	<b>\$4.91</b>	<b>\$451.81</b>	<b>\$12.32</b>	<b>\$410.16</b>	<b>\$293.94</b>	<b>\$704.10</b>	<b>\$239.97</b>	<b>0.88</b>	<b>1.52</b>	<b>5.85%</b>



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# ANALYSIS BY VINTAGE YEAR

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
<b>2008</b>												
Barings Core Property Fund, L.P.	2008	\$250.00	\$0.00	\$250.00	\$0.00	\$124.82	\$263.56	\$388.38	\$138.38	0.50	1.55	6.48%
Covenant Apartment Fund VI (Institutional), L.P.	2008	\$25.00	\$0.00	\$25.16	\$0.00	\$39.52	\$0.00	\$39.52	\$14.36	1.57	1.57	13.50%
IL & FS India Realty Fund II, LLC	2008	\$50.00	\$0.00	\$50.00	\$0.00	\$24.16	\$5.76	\$29.92	-\$20.08	0.48	0.60	-7.79%
<b>Total 2008</b>		<b>\$325.00</b>	<b>\$0.00</b>	<b>\$325.16</b>	<b>\$0.00</b>	<b>\$188.50</b>	<b>\$269.32</b>	<b>\$457.82</b>	<b>\$132.66</b>	<b>0.58</b>	<b>1.41</b>	<b>5.24%</b>
<b>2009</b>												
Blackstone Real Estate Partners Europe III, L.P.	2009	\$50.00	\$6.62	\$45.94	\$6.15	\$69.23	\$8.21	\$77.44	\$25.35	1.33	1.49	10.90%
Starwood Global Opportunity Fund VIII, L.P.	2009	\$50.00	\$4.64	\$52.98	\$0.00	\$76.27	\$6.84	\$83.11	\$30.13	1.44	1.57	12.38%
WLR IV PPIP Co-Invest, L.P.	2009	\$100.00	\$0.00	\$127.38	\$0.00	\$161.54	\$4.82	\$166.35	\$38.98	1.27	1.31	14.43%
<b>Total 2009</b>		<b>\$200.00</b>	<b>\$11.26</b>	<b>\$226.29</b>	<b>\$6.15</b>	<b>\$307.04</b>	<b>\$19.87</b>	<b>\$326.90</b>	<b>\$94.46</b>	<b>1.32</b>	<b>1.41</b>	<b>12.77%</b>
<b>2010</b>												
Canyon-Johnson Urban Fund III, L.P.	2010	\$50.00	\$0.00	\$50.59	\$0.00	\$66.65	\$0.00	\$66.65	\$16.06	1.32	1.32	10.96%
<b>Total 2010</b>		<b>\$50.00</b>	<b>\$0.00</b>	<b>\$50.59</b>	<b>\$0.00</b>	<b>\$66.65</b>	<b>\$0.00</b>	<b>\$66.65</b>	<b>\$16.06</b>	<b>1.32</b>	<b>1.32</b>	<b>10.96%</b>
<b>2011</b>												
Blackstone Real Estate Special Situations Fund II, L.P.	2011	\$74.08	\$2.03	\$72.05	\$0.00	\$84.83	\$1.28	\$86.12	\$14.07	1.18	1.20	9.32%
Hart Realty Advisors-Core Separate Account	2011	\$180.00	\$37.47	\$414.02	\$0.00	\$329.17	\$196.05	\$525.21	\$111.20	0.80	1.27	8.45%
Lone Star Real Estate Fund II (U.S.), L.P.	2011	\$75.00	\$8.54	\$75.11	\$0.00	\$109.43	\$2.39	\$111.83	\$36.72	1.46	1.49	25.46%
<b>Total 2011</b>		<b>\$329.08</b>	<b>\$48.04</b>	<b>\$561.17</b>	<b>\$0.00</b>	<b>\$523.43</b>	<b>\$199.72</b>	<b>\$723.16</b>	<b>\$161.99</b>	<b>0.93</b>	<b>1.29</b>	<b>10.27%</b>
<b>2012</b>												
American Core Realty Separate Account	2012	\$150.00	\$0.00	\$223.19	\$0.29	\$123.21	\$177.75	\$300.96	\$77.47	0.55	1.35	12.80%
<b>Total 2012</b>		<b>\$150.00</b>	<b>\$0.00</b>	<b>\$223.19</b>	<b>\$0.29</b>	<b>\$123.21</b>	<b>\$177.75</b>	<b>\$300.96</b>	<b>\$77.47</b>	<b>0.55</b>	<b>1.35</b>	<b>12.80%</b>
<b>2013</b>												
Starwood Distressed Opportunity Fund IX Global, L.P.	2013	\$50.00	\$3.50	\$46.50	\$0.00	\$59.20	\$17.00	\$76.21	\$29.71	1.27	1.64	19.16%
Trumbull Property Fund, L.P.	2013	\$75.00	\$0.00	\$75.00	\$0.00	\$13.82	\$84.82	\$98.64	\$23.64	0.18	1.32	5.77%
Trumbull Property Income Fund, L.P.	2013	\$50.00	\$0.00	\$50.00	\$0.00	\$9.99	\$62.74	\$72.72	\$22.72	0.20	1.45	7.45%
UBS Trumbull Property Growth & Income Fund, L.P.	2013	\$50.00	\$0.00	\$50.00	\$0.00	\$8.22	\$78.44	\$86.65	\$36.65	0.16	1.73	12.08%
USAA Eagle Real Estate Feeder 1, L.P.	2013	\$100.00	\$0.00	\$100.00	\$0.00	\$19.27	\$153.28	\$172.56	\$72.56	0.19	1.73	11.01%
<b>Total 2013</b>		<b>\$325.00</b>	<b>\$3.50</b>	<b>\$321.50</b>	<b>\$0.00</b>	<b>\$110.50</b>	<b>\$396.28</b>	<b>\$506.78</b>	<b>\$185.28</b>	<b>0.34</b>	<b>1.58</b>	<b>10.18%</b>



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# ANALYSIS BY VINTAGE YEAR

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
<b>2014</b>												
Cypress Acquisition Partners Retail Fund, L.P.	2014	\$50.00	\$1.91	\$56.55	\$0.00	\$14.10	\$40.35	\$54.45	-\$2.10	0.25	0.96	-1.21%
Gerding Edlen Green Cities II, L.P.	2014	\$30.00	\$1.98	\$29.53	\$0.98	\$29.46	\$13.11	\$42.56	\$12.05	0.97	1.39	9.93%
JP Morgan Strategic Property Fund	2014	\$90.00	\$0.00	\$90.00	\$1.43	\$120.44	\$0.00	\$120.44	\$29.01	1.32	1.32	7.60%
Lion Industrial Trust	2014	\$102.34	\$0.00	\$102.34	\$2.56	\$17.68	\$155.13	\$172.81	\$67.91	0.17	1.65	14.09%
PRISA I, L.P.	2014	\$185.00	\$0.00	\$185.00	\$0.00	\$30.96	\$215.72	\$246.68	\$61.68	0.17	1.33	8.38%
<b>Total 2014</b>		<b>\$457.34</b>	<b>\$3.89</b>	<b>\$463.42</b>	<b>\$4.97</b>	<b>\$212.63</b>	<b>\$424.31</b>	<b>\$636.94</b>	<b>\$168.55</b>	<b>0.45</b>	<b>1.36</b>	<b>8.86%</b>
<b>2015</b>												
Blackstone Real Estate Partners VIII, L.P.	2015	\$100.00	\$19.83	\$100.52	\$5.45	\$39.67	\$101.52	\$141.18	\$35.22	0.37	1.33	15.91%
Covenant Apartment Fund VIII, L.P.	2015	\$30.00	\$0.00	\$30.00	-\$0.08	\$27.29	\$18.59	\$45.88	\$15.95	0.91	1.53	20.11%
Landmark Real Estate Fund VII, L.P.	2015	\$40.00	\$3.92	\$36.08	\$0.00	\$25.40	\$18.49	\$43.88	\$7.80	0.70	1.22	10.33%
Starwood Global Opportunity Fund X, L.P.	2015	\$100.00	\$10.00	\$90.00	\$0.00	\$77.23	\$46.05	\$123.29	\$33.29	0.86	1.37	18.76%
<b>Total 2015</b>		<b>\$270.00</b>	<b>\$33.75</b>	<b>\$256.60</b>	<b>\$5.37</b>	<b>\$169.58</b>	<b>\$184.65</b>	<b>\$354.23</b>	<b>\$92.26</b>	<b>0.65</b>	<b>1.35</b>	<b>16.67%</b>
<b>2016</b>												
Crow Holdings Realty Partners VII, L.P.	2016	\$75.00	\$7.66	\$67.34	\$5.02	\$47.52	\$47.50	\$95.02	\$22.66	0.66	1.31	11.88%
<b>Total 2016</b>		<b>\$75.00</b>	<b>\$7.66</b>	<b>\$67.34</b>	<b>\$5.02</b>	<b>\$47.52</b>	<b>\$47.50</b>	<b>\$95.02</b>	<b>\$22.66</b>	<b>0.66</b>	<b>1.31</b>	<b>11.88%</b>
<b>2017</b>												
Blackstone Real Estate Partners Europe V, L.P.	2017	\$50.00	\$11.52	\$38.95	\$2.16	\$2.80	\$47.00	\$49.80	\$8.70	0.07	1.21	14.04%
Gerding Edlen Green Cities III, L.P.	2017	\$50.00	\$2.19	\$48.69	\$1.39	\$6.22	\$54.87	\$61.09	\$11.01	0.12	1.22	9.19%
Landmark Real Estate Partners VIII, L.P.	2017	\$65.00	\$43.99	\$24.68	-\$0.08	\$7.34	\$21.03	\$28.38	\$3.77	0.30	1.15	21.21%
Starwood Opportunity Fund XI Global, L.P.	2017	\$50.00	\$41.43	\$9.52	\$0.00	\$2.19	\$10.72	\$12.91	\$3.39	0.23	1.36	57.20%
<b>Total 2017</b>		<b>\$215.00</b>	<b>\$99.14</b>	<b>\$121.84</b>	<b>\$3.46</b>	<b>\$18.55</b>	<b>\$133.62</b>	<b>\$152.17</b>	<b>\$26.86</b>	<b>0.15</b>	<b>1.21</b>	<b>12.91%</b>
<b>2018</b>												
BIG Real Estate Fund I, L.P.	2018	\$65.00	\$35.48	\$41.91	\$0.62	\$16.77	\$28.99	\$45.76	\$3.23	0.39	1.08	10.22%
Covenant Apartment Fund IX, L.P.	2018	\$50.00	\$27.50	\$22.50	\$0.60	\$0.00	\$23.08	\$23.08	-\$0.02	0.00	1.00	-0.10%
Crow Holdings Realty Partners VIII, L.P.	2018	\$75.00	\$22.06	\$52.94	\$0.00	\$1.02	\$56.89	\$57.91	\$4.97	0.02	1.09	11.88%
USAA Eagle Real Estate Feeder 1, L.P.	2018	\$50.00	\$5.68	\$44.32	\$0.00	\$0.00	\$46.41	\$46.41	\$2.09	0.00	1.05	5.35%
<b>Total 2018</b>		<b>\$240.00</b>	<b>\$90.71</b>	<b>\$161.68</b>	<b>\$1.22</b>	<b>\$17.79</b>	<b>\$155.37</b>	<b>\$173.16</b>	<b>\$10.26</b>	<b>0.11</b>	<b>1.06</b>	<b>7.89%</b>



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# ANALYSIS BY VINTAGE YEAR

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
<b>2019</b>												
Artemis Real Estate Partners Income & Growth Fund, L.P.	2019	\$100.00	\$83.48	\$16.52	\$0.00	\$0.00	\$16.40	\$16.40	-\$0.12	0.00	0.99	-1.33%
Gerding Edlen Green Cities IV, L.P.	2019	\$75.00	\$60.27	\$14.73	-\$0.21	\$0.00	\$13.84	\$13.84	-\$0.68	0.00	0.95	-10.84%
<b>Total 2019</b>		<b>\$175.00</b>	<b>\$143.75</b>	<b>\$31.25</b>	<b>-\$0.21</b>	<b>\$0.00</b>	<b>\$30.23</b>	<b>\$30.23</b>	<b>-\$0.80</b>	<b>0.00</b>	<b>0.97</b>	<b>-8.07%</b>
<b>Total</b>		<b>\$4,208.08</b>	<b>\$451.66</b>	<b>\$4,252.49</b>	<b>\$53.26</b>	<b>\$3,217.91</b>	<b>\$2,340.88</b>	<b>\$5,558.78</b>	<b>\$1,253.03</b>	<b>0.75</b>	<b>1.29</b>	<b>5.67%</b>



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# ANALYSIS BY INVESTMENT STRATEGY

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
<b>Core</b>												
AEW Core Real Estate Separate Account	2005	\$243.53	\$0.00	\$243.53	\$0.00	\$245.21	\$0.00	\$245.21	\$1.69	1.01	1.01	0.16%
American Core Realty Separate Account	2012	\$150.00	\$0.00	\$223.19	\$0.29	\$123.21	\$177.75	\$300.96	\$77.47	0.55	1.35	12.80%
Barings Core Property Fund, L.P.	2008	\$250.00	\$0.00	\$250.00	\$0.00	\$124.82	\$263.56	\$388.38	\$138.38	0.50	1.55	6.48%
Capri Select Income II, L.P.	2005	\$30.00	\$0.00	\$30.45	\$0.00	\$15.88	\$0.01	\$15.89	-\$14.56	0.52	0.52	-9.88%
Hart Realty Advisors-Core Separate Account	2011	\$180.00	\$37.47	\$414.02	\$0.00	\$329.17	\$196.05	\$525.21	\$111.20	0.80	1.27	8.45%
JP Morgan Strategic Property Fund	2014	\$90.00	\$0.00	\$90.00	\$1.43	\$120.44	\$0.00	\$120.44	\$29.01	1.32	1.32	7.60%
Prime Property Fund, LLC	2007	\$225.00	\$0.00	\$225.00	\$0.00	\$136.11	\$286.25	\$422.37	\$197.37	0.60	1.88	7.99%
PRISA I, L.P.	2014	\$185.00	\$0.00	\$185.00	\$0.00	\$30.96	\$215.72	\$246.68	\$61.68	0.17	1.33	8.38%
Trumbull Property Fund, L.P.	2013	\$75.00	\$0.00	\$75.00	\$0.00	\$13.82	\$84.82	\$98.64	\$23.64	0.18	1.32	5.77%
Trumbull Property Income Fund, L.P.	2013	\$50.00	\$0.00	\$50.00	\$0.00	\$9.99	\$62.74	\$72.72	\$22.72	0.20	1.45	7.45%
USAA Eagle Real Estate Feeder 1, L.P.	2013	\$100.00	\$0.00	\$100.00	\$0.00	\$19.27	\$153.28	\$172.56	\$72.56	0.19	1.73	11.01%
USAA Eagle Real Estate Feeder 1, L.P.	2018	\$50.00	\$5.68	\$44.32	\$0.00	\$0.00	\$46.41	\$46.41	\$2.09	0.00	1.05	5.35%
<b>Total Core</b>		<b>\$1,628.53</b>	<b>\$43.15</b>	<b>\$1,930.50</b>	<b>\$1.73</b>	<b>\$1,168.87</b>	<b>\$1,486.60</b>	<b>\$2,655.47</b>	<b>\$723.25</b>	<b>0.60</b>	<b>1.37</b>	<b>6.57%</b>
<b>Core Plus</b>												
Artemis Real Estate Partners Income & Growth Fund, L.P.	2019	\$100.00	\$83.48	\$16.52	\$0.00	\$0.00	\$16.40	\$16.40	-\$0.12	0.00	0.99	-1.33%
<b>Total Core Plus</b>		<b>\$100.00</b>	<b>\$83.48</b>	<b>\$16.52</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$16.40</b>	<b>\$16.40</b>	<b>-\$0.12</b>	<b>0.00</b>	<b>0.99</b>	<b>-1.33%</b>
<b>Opportunistic</b>												
AEW Partners III, L.P.	1998	\$100.00	\$0.00	\$101.69	\$0.00	\$150.65	\$0.00	\$150.65	\$48.95	1.48	1.48	8.77%
Apollo Real Estate Investment Fund III, L.P.	1998	\$75.00	\$0.00	\$78.82	\$0.00	\$116.21	\$0.00	\$116.21	\$37.39	1.47	1.47	6.25%
Blackstone Real Estate Partners Europe III, L.P.	2009	\$50.00	\$6.62	\$45.94	\$6.15	\$69.23	\$8.21	\$77.44	\$25.35	1.33	1.49	10.90%
Blackstone Real Estate Partners Europe V, L.P.	2017	\$50.00	\$11.52	\$38.95	\$2.16	\$2.80	\$47.00	\$49.80	\$8.70	0.07	1.21	14.04%
Blackstone Real Estate Partners VI, L.P.	2007	\$100.00	\$4.91	\$99.61	\$12.09	\$216.06	\$7.69	\$223.74	\$112.04	1.93	2.00	13.31%
Blackstone Real Estate Partners VIII, L.P.	2015	\$100.00	\$19.83	\$100.52	\$5.45	\$39.67	\$101.52	\$141.18	\$35.22	0.37	1.33	15.91%
Canyon-Johnson Urban Fund II, L.P.	2005	\$50.00	\$5.06	\$44.94	\$0.00	\$19.87	\$0.17	\$20.04	-\$24.90	0.44	0.45	-10.44%
Canyon-Johnson Urban Fund III, L.P.	2010	\$50.00	\$0.00	\$50.59	\$0.00	\$66.65	\$0.00	\$66.65	\$16.06	1.32	1.32	10.96%
IL & FS India Realty Fund II, LLC	2008	\$50.00	\$0.00	\$50.00	\$0.00	\$24.16	\$5.76	\$29.92	-\$20.08	0.48	0.60	-7.79%
Landmark Real Estate Fund VII, L.P.	2015	\$40.00	\$3.92	\$36.08	\$0.00	\$25.40	\$18.49	\$43.88	\$7.80	0.70	1.22	10.33%
Landmark Real Estate Partners VIII, L.P.	2017	\$65.00	\$43.99	\$24.68	-\$0.08	\$7.34	\$21.03	\$28.38	\$3.77	0.30	1.15	21.21%
Lone Star Real Estate Fund II (U.S.), L.P.	2011	\$75.00	\$8.54	\$75.11	\$0.00	\$109.43	\$2.39	\$111.83	\$36.72	1.46	1.49	25.46%
MacFarlane Urban Real Estate Fund II, L.P.	2007	\$100.00	\$0.00	\$102.20	\$0.00	\$27.72	\$0.00	\$27.72	-\$74.49	0.27	0.27	-16.47%
Starwood Distressed Opportunity Fund IX Global, L.P.	2013	\$50.00	\$3.50	\$46.50	\$0.00	\$59.20	\$17.00	\$76.21	\$29.71	1.27	1.64	19.16%



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Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Starwood Global Opportunity Fund VII, L.P.	2006	\$50.00	\$0.00	\$50.00	\$0.00	\$39.01	\$1.48	\$40.49	-\$9.51	0.78	0.81	-2.32%
Starwood Global Opportunity Fund VIII, L.P.	2009	\$50.00	\$4.64	\$52.98	\$0.00	\$76.27	\$6.84	\$83.11	\$30.13	1.44	1.57	12.38%
Starwood Global Opportunity Fund X, L.P.	2015	\$100.00	\$10.00	\$90.00	\$0.00	\$77.23	\$46.05	\$123.29	\$33.29	0.86	1.37	18.76%
Starwood Opportunity Fund XI Global, L.P.	2017	\$50.00	\$41.43	\$9.52	\$0.00	\$2.19	\$10.72	\$12.91	\$3.39	0.23	1.36	57.20%
Walton Street Real Estate Fund II, L.P.	1998	\$73.13	\$0.00	\$73.13	\$0.15	\$171.65	\$0.00	\$171.65	\$98.37	2.34	2.34	13.03%
Westport Senior Living Investment Fund, L.P.	1998	\$100.00	\$0.00	\$140.84	\$0.00	\$84.03	\$0.00	\$84.03	-\$56.81	0.60	0.60	-13.20%
WLR IV PPIP Co-Invest, L.P.	2009	\$100.00	\$0.00	\$127.38	\$0.00	\$161.54	\$4.82	\$166.35	\$38.98	1.27	1.31	14.43%
<b>Total Opportunistic</b>		<b>\$1,478.13</b>	<b>\$163.97</b>	<b>\$1,439.49</b>	<b>\$25.92</b>	<b>\$1,546.30</b>	<b>\$299.17</b>	<b>\$1,845.48</b>	<b>\$380.07</b>	<b>1.06</b>	<b>1.26</b>	<b>5.43%</b>
<b>Value Add</b>												
BIG Real Estate Fund I, L.P.	2018	\$65.00	\$35.48	\$41.91	\$0.62	\$16.77	\$28.99	\$45.76	\$3.23	0.39	1.08	10.22%
Blackstone Real Estate Special Situations Fund II, L.P.	2011	\$74.08	\$2.03	\$72.05	\$0.00	\$84.83	\$1.28	\$86.12	\$14.07	1.18	1.20	9.32%
Colony Realty Partners II, L.P.	2006	\$50.00	\$0.00	\$51.00	\$0.00	\$13.19	\$0.00	\$13.19	-\$37.81	0.26	0.26	-13.75%
Covenant Apartment Fund IX, L.P.	2018	\$50.00	\$27.50	\$22.50	\$0.60	\$0.00	\$23.08	\$23.08	-\$0.02	0.00	1.00	-0.10%
Covenant Apartment Fund V (Institutional), L.P.	2007	\$25.00	\$0.00	\$25.00	\$0.23	\$30.28	\$0.00	\$30.28	\$5.05	1.20	1.20	2.90%
Covenant Apartment Fund VI (Institutional), L.P.	2008	\$25.00	\$0.00	\$25.16	\$0.00	\$39.52	\$0.00	\$39.52	\$14.36	1.57	1.57	13.50%
Covenant Apartment Fund VIII, L.P.	2015	\$30.00	\$0.00	\$30.00	-\$0.08	\$27.29	\$18.59	\$45.88	\$15.95	0.91	1.53	20.11%
Crow Holdings Realty Partners VII, L.P.	2016	\$75.00	\$7.66	\$67.34	\$5.02	\$47.52	\$47.50	\$95.02	\$22.66	0.66	1.31	11.88%
Crow Holdings Realty Partners VIII, L.P.	2018	\$75.00	\$22.06	\$52.94	\$0.00	\$1.02	\$56.89	\$57.91	\$4.97	0.02	1.09	11.88%
Cypress Acquisition Partners Retail Fund, L.P.	2014	\$50.00	\$1.91	\$56.55	\$0.00	\$14.10	\$40.35	\$54.45	-\$2.10	0.25	0.96	-1.21%
Gerding Edlen Green Cities II, L.P.	2014	\$30.00	\$1.98	\$29.53	\$0.98	\$29.46	\$13.11	\$42.56	\$12.05	0.97	1.39	9.93%
Gerding Edlen Green Cities III, L.P.	2017	\$50.00	\$2.19	\$48.69	\$1.39	\$6.22	\$54.87	\$61.09	\$11.01	0.12	1.22	9.19%
Gerding Edlen Green Cities IV, L.P.	2019	\$75.00	\$60.27	\$14.73	-\$0.21	\$0.00	\$13.84	\$13.84	-\$0.68	0.00	0.95	-10.84%
Lion Industrial Trust	2014	\$102.34	\$0.00	\$102.34	\$2.56	\$17.68	\$155.13	\$172.81	\$67.91	0.17	1.65	14.09%
New Boston Real Estate Individual and Institutional Investment Fund, L.P. IV	1998	\$15.00	\$0.00	\$15.00	\$0.00	\$17.34	\$0.00	\$17.34	\$2.34	1.16	1.16	3.10%
Rockwood Capital Real Estate Partners Fund V, L.P.	2004	\$40.00	\$0.00	\$40.76	\$3.98	\$57.01	\$0.00	\$57.01	\$12.27	1.27	1.27	9.36%
Rockwood Capital Real Estate Partners Fund VI, L.P.	2005	\$20.00	\$0.00	\$20.46	\$2.72	\$22.01	\$0.08	\$22.09	-\$1.09	0.95	0.95	-0.84%
Rockwood Capital Real Estate Partners Fund VII, L.P.	2006	\$50.00	\$0.00	\$50.00	\$7.82	\$27.48	\$6.00	\$33.47	-\$24.34	0.48	0.58	-6.43%
UBS Trumbull Property Growth & Income Fund, L.P.	2013	\$50.00	\$0.00	\$50.00	\$0.00	\$8.22	\$78.44	\$86.65	\$36.65	0.16	1.73	12.08%
Urban Strategy America Fund, L.P.	2006	\$50.00	\$0.00	\$50.00	\$0.00	\$42.80	\$0.56	\$43.36	-\$6.64	0.86	0.87	-1.87%
<b>Total Value Add</b>		<b>\$1,001.42</b>	<b>\$161.07</b>	<b>\$865.98</b>	<b>\$25.62</b>	<b>\$502.73</b>	<b>\$538.71</b>	<b>\$1,041.44</b>	<b>\$149.84</b>	<b>0.56</b>	<b>1.17</b>	<b>3.82%</b>
<b>Total</b>		<b>\$4,208.08</b>	<b>\$451.66</b>	<b>\$4,252.49</b>	<b>\$53.26</b>	<b>\$3,217.91</b>	<b>\$2,340.88</b>	<b>\$5,558.78</b>	<b>\$1,253.03</b>	<b>0.75</b>	<b>1.29</b>	<b>5.67%</b>



December 31, 2019

APPENDIX 2:  
**QUARTERLY REAL ESTATE  
TRANSACTIONS**  
*FOURTH QUARTER 2019*

NEPC, LLC

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## State of Connecticut

# QUARTERLY TRANSACTION SUMMARY

Fund Name	Month Ended	Capital Call	Additional Fee	Recallable Distribution	Distribution	Net Cash Flow
American Core Realty Separate Account	10/31/2019				-1,020,000	-1,020,000
	11/30/2019				-420,000	-420,000
	12/31/2019				-680,000	-680,000
<b>Total: American Core Realty Separate Account</b>					<b>-2,120,000</b>	<b>-2,120,000</b>
Apollo Real Estate Investment Fund III, L.P.	12/31/2019				-47,834	-47,834
<b>Total: Apollo Real Estate Investment Fund III, L.P.</b>					<b>-47,834</b>	<b>-47,834</b>
Artemis Real Estate Partners Income & Growth Fund, L.P.	10/31/2019	532,020				532,020
	11/30/2019	12,409,933				12,409,933
	12/31/2019	4,829,750				4,829,750
<b>Total: Artemis Real Estate Partners Income &amp; Growth Fund, L.P.</b>		<b>17,771,703</b>				<b>17,771,703</b>
Barings Core Property Fund, L.P.	12/31/2019				-2,355,162	-2,355,162
<b>Total: Barings Core Property Fund, L.P.</b>					<b>-2,355,162</b>	<b>-2,355,162</b>
BIG Real Estate Fund I, L.P.	10/31/2019				-554,741	-554,741
	11/30/2019					0
	12/31/2019	2,952,511			-681,539	2,270,972
<b>Total: BIG Real Estate Fund I, L.P.</b>		<b>2,952,511</b>			<b>-1,236,281</b>	<b>1,716,230</b>
Blackstone Real Estate Partners Europe III, L.P.	11/30/2019				-289,355	-289,355
<b>Total: Blackstone Real Estate Partners Europe III, L.P.</b>					<b>-289,355</b>	<b>-289,355</b>
Blackstone Real Estate Partners Europe V, L.P.	10/31/2019	1,011,874			-300,091	711,783
	11/30/2019	5,118,928	187,500		-35,517	5,270,911
	12/31/2019	1,007,496			-831,387	176,108
<b>Total: Blackstone Real Estate Partners Europe V, L.P.</b>		<b>7,138,297</b>	<b>187,500</b>		<b>-1,166,995</b>	<b>6,158,802</b>



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**State of Connecticut**

# QUARTERLY TRANSACTION SUMMARY

Fund Name	Month Ended	Capital Call	Additional Fee	Recallable Distribution	Distribution	Net Cash Flow
Blackstone Real Estate Partners VI, L.P.	10/31/2019				-813,994	-813,994
	11/30/2019				-245,471	-245,471
<b>Total: Blackstone Real Estate Partners VI, L.P.</b>					<b>-1,059,464</b>	<b>-1,059,464</b>
Blackstone Real Estate Partners VIII, L.P.	10/31/2019	406,116	255,456		-191,328	470,244
	11/30/2019	1,297,763			-1,455,456	-157,693
	12/31/2019	1,433,764			-5,033,991	-3,600,228
<b>Total: Blackstone Real Estate Partners VIII, L.P.</b>		<b>3,137,643</b>	<b>255,456</b>		<b>-6,680,775</b>	<b>-3,287,676</b>
Capri Select Income II, L.P.	10/31/2019				-164,160	-164,160
<b>Total: Capri Select Income II, L.P.</b>					<b>-164,160</b>	<b>-164,160</b>
Covenant Apartment Fund IX, L.P.	10/31/2019	1,000,000				1,000,000
	12/31/2019	1,500,000				1,500,000
<b>Total: Covenant Apartment Fund IX, L.P.</b>		<b>2,500,000</b>				<b>2,500,000</b>
Covenant Apartment Fund VIII, L.P.	10/31/2019				-709,672	-709,672
	12/31/2019	67,610			-4,338,463	-4,270,852
<b>Total: Covenant Apartment Fund VIII, L.P.</b>			<b>67,610</b>		<b>-5,048,135</b>	<b>-4,980,525</b>
Crow Holdings Realty Partners VII, L.P.	10/31/2019	33,439			-934,864	-901,425
	11/30/2019				-559,154	-559,154
	12/31/2019	154,101			-2,274,574	-2,120,473
<b>Total: Crow Holdings Realty Partners VII, L.P.</b>		<b>187,540</b>			<b>-3,768,592</b>	<b>-3,581,052</b>
Crow Holdings Realty Partners VIII, L.P.	10/31/2019	6,738,404			-78,399	6,660,005
	11/30/2019				-56,356	-56,356
	12/31/2019	3,514,879				3,514,879
<b>Total: Crow Holdings Realty Partners VIII, L.P.</b>		<b>10,253,283</b>			<b>-134,755</b>	<b>10,118,528</b>



December 31, 2019

**State of Connecticut**

# QUARTERLY TRANSACTION SUMMARY

Fund Name	Month Ended	Capital Call	Additional Fee	Recallable Distribution	Distribution	Net Cash Flow
Cypress Acquisition Partners Retail Fund, L.P.	12/31/2019	169,112				169,112
<b>Total: Cypress Acquisition Partners Retail Fund, L.P.</b>		<b>169,112</b>				<b>169,112</b>
Gerding Edlen Green Cities II, L.P.	10/31/2019				-95,953	-95,953
	12/31/2019				-95,953	-95,953
<b>Total: Gerding Edlen Green Cities II, L.P.</b>					<b>-191,906</b>	<b>-191,906</b>
Gerding Edlen Green Cities III, L.P.	12/31/2019	123,490				123,490
<b>Total: Gerding Edlen Green Cities III, L.P.</b>		<b>123,490</b>				<b>123,490</b>
Gerding Edlen Green Cities IV, L.P.	11/30/2019	12,506,400				12,506,400
<b>Total: Gerding Edlen Green Cities IV, L.P.</b>		<b>12,506,400</b>				<b>12,506,400</b>
Hart Realty Advisors-Core Separate Account	10/31/2019				-684,843	-684,843
	11/30/2019				-947,750	-947,750
	12/31/2019				-294,750	-294,750
<b>Total: Hart Realty Advisors-Core Separate Account</b>					<b>-1,927,343</b>	<b>-1,927,343</b>
JP Morgan Strategic Property Fund	10/31/2019				-105,339,025	-105,339,025
<b>Total: JP Morgan Strategic Property Fund</b>					<b>-105,339,025</b>	<b>-105,339,025</b>
Landmark Real Estate Fund VII, L.P.	10/31/2019				-476,391	-476,391
<b>Total: Landmark Real Estate Fund VII, L.P.</b>					<b>-476,391</b>	<b>-476,391</b>
Landmark Real Estate Partners VIII, L.P.	10/31/2019				0	0
	12/31/2019	4,053,542				4,053,542
<b>Total: Landmark Real Estate Partners VIII, L.P.</b>		<b>4,053,542</b>				<b>4,053,542</b>



December 31, 2019

**State of Connecticut**

# QUARTERLY TRANSACTION SUMMARY

Fund Name	Month Ended	Capital Call	Additional Fee	Recallable Distribution	Distribution	Net Cash Flow
Lone Star Real Estate Fund II (U.S.), L.P.	10/31/2019				-410,501	-410,501
	11/30/2019				-205,251	-205,251
<b>Total: Lone Star Real Estate Fund II (U.S.), L.P.</b>					<b>-615,752</b>	<b>-615,752</b>
Prime Property Fund, LLC	12/31/2019				-2,810,767	-2,810,767
<b>Total: Prime Property Fund, LLC</b>					<b>-2,810,767</b>	<b>-2,810,767</b>
PRISA I, L.P.	12/31/2019				-1,820,221	-1,820,221
<b>Total: PRISA I, L.P.</b>					<b>-1,820,221</b>	<b>-1,820,221</b>
Starwood Global Opportunity Fund VIII, L.P.	12/31/2019				-185,344	-185,344
<b>Total: Starwood Global Opportunity Fund VIII, L.P.</b>					<b>-185,344</b>	<b>-185,344</b>
Starwood Global Opportunity Fund X, L.P.	10/31/2019				-1,332,275	-1,332,275
	12/31/2019				-2,712,989	-2,712,989
<b>Total: Starwood Global Opportunity Fund X, L.P.</b>					<b>-4,045,264</b>	<b>-4,045,264</b>
Starwood Opportunity Fund XI Global, L.P.	10/31/2019	2,500,000				2,500,000
	12/31/2019				-165,759	-165,759
<b>Total: Starwood Opportunity Fund XI Global, L.P.</b>		<b>2,500,000</b>			<b>-165,759</b>	<b>2,334,241</b>
Trumbull Property Fund, L.P.	10/31/2019				-789,749	-789,749
<b>Total: Trumbull Property Fund, L.P.</b>					<b>-789,749</b>	<b>-789,749</b>
Trumbull Property Income Fund, L.P.	10/31/2019				-495,648	-495,648
<b>Total: Trumbull Property Income Fund, L.P.</b>					<b>-495,648</b>	<b>-495,648</b>



December 31, 2019

**State of Connecticut**

# **QUARTERLY TRANSACTION SUMMARY**

Fund Name	Month Ended	Capital Call	Additional Fee	Recallable Distribution	Distribution	Net Cash Flow
UBS Trumbull Property Growth & Income Fund, L.P.	10/31/2019				-385,671	-385,671
<b>Total: UBS Trumbull Property Growth &amp; Income Fund, L.P.</b>					<b>-385,671</b>	<b>-385,671</b>
Urban Strategy America Fund, L.P.	11/30/2019				-236,827	-236,827
<b>Total: Urban Strategy America Fund, L.P.</b>					<b>-236,827</b>	<b>-236,827</b>
USAA Eagle Real Estate Feeder 1, L.P.	11/30/2019	3,948,066				3,948,066
<b>Total: USAA Eagle Real Estate Feeder 1, L.P.</b>		<b>3,948,066</b>				<b>3,948,066</b>
<b>Grand Total</b>		<b>67,054,047</b>	<b>698,106</b>		<b>-143,557,175</b>	<b>-75,805,022</b>



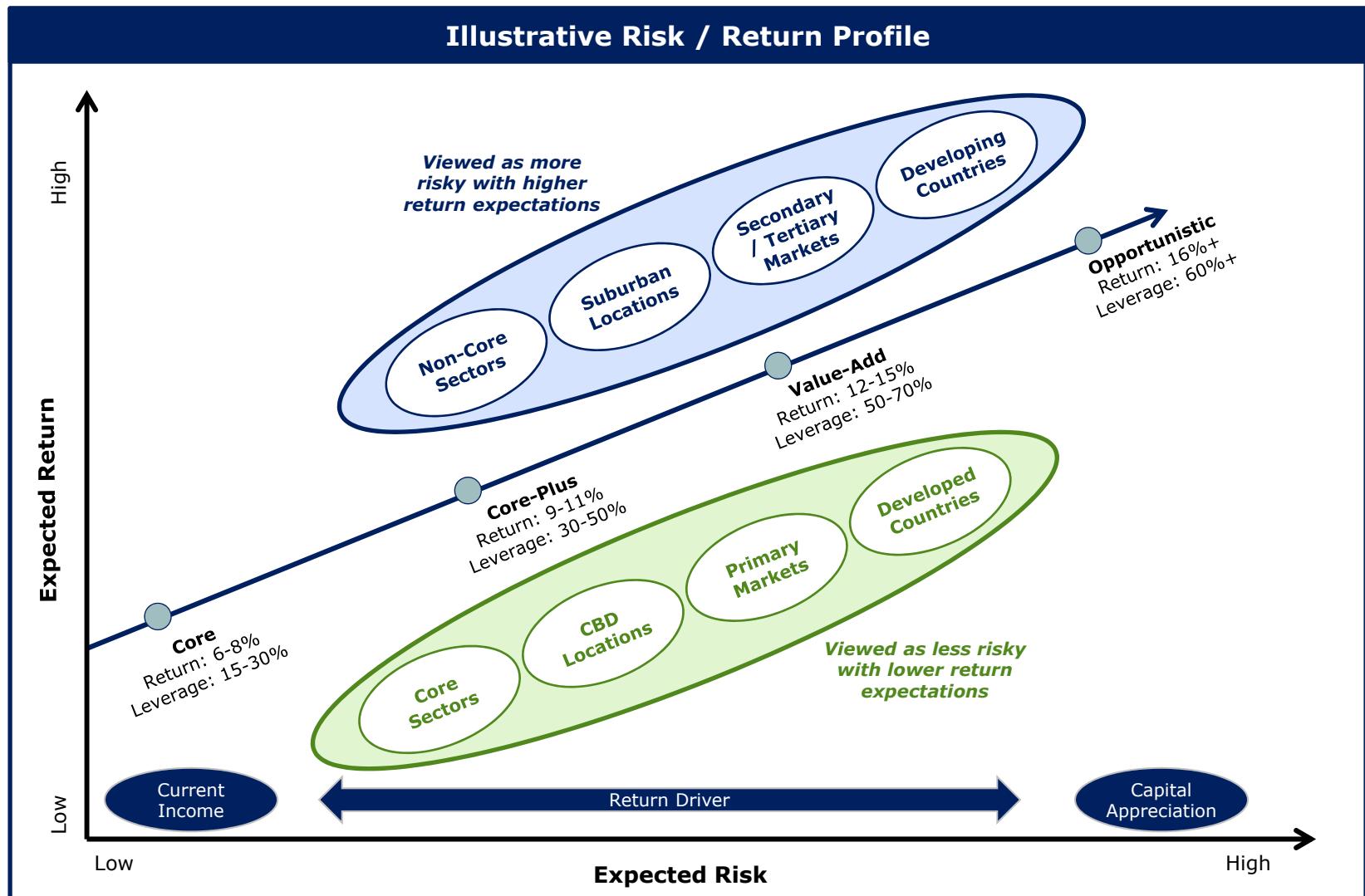
APPENDIX 3:  
**REAL ESTATE STRATEGY  
SUMMARIES & GLOSSARY**

# SPECTRUM OF REAL ESTATE INVESTMENT STRATEGIES

	Real Estate Investment Style / Overview	Investment Strategy	Portfolio Role	Considerations
Core Strategies	<b>Core / Core-Plus</b> <ul style="list-style-type: none"> <li>Return driver: income</li> <li>Primary vehicle: open-end funds</li> <li>Historical avg. returns: 7-8% / 8%-10%</li> <li>Leverage: 15-40% / 40%-50%</li> <li>Hold period: long-term</li> </ul>	Stabilized income producing assets	<ul style="list-style-type: none"> <li>Current income</li> <li>Broad exposure to commercial real estate (asset class beta)</li> <li>Inflation protection</li> </ul>	<ul style="list-style-type: none"> <li>Vehicles are semi-liquid (entrance/exit queues)</li> <li>Limited alpha producing opportunities</li> </ul>
Non-Core Strategies	<b>RE Securities</b> <ul style="list-style-type: none"> <li>Return driver: income</li> <li>Primary vehicle: REIT funds</li> <li>Historical avg. returns: 7-9%</li> <li>Leverage: 30-50%</li> <li>Hold period: long-term</li> </ul>	Stabilized income producing assets	<ul style="list-style-type: none"> <li>Current income (dividends)</li> <li>Long-term exposure to commercial real estate (beta)</li> <li>Long-term inflation protection</li> </ul>	<ul style="list-style-type: none"> <li>Volatility</li> <li>Equity correlation</li> </ul>
Non-Core Strategies	<b>Value-Add</b> <ul style="list-style-type: none"> <li>Return driver: income/appreciation</li> <li>Primary vehicle: varies</li> <li>Historical avg returns: 8-10%</li> <li>Leverage: 40-70%</li> <li>Hold period: 3-5 years</li> </ul>	Properties requiring lease-up, repositioning, renovation or rehabilitation	<ul style="list-style-type: none"> <li>Provides part current income and capital appreciation</li> <li>Some inflation protection</li> </ul>	<ul style="list-style-type: none"> <li>Vehicles are semi-liquid or illiquid</li> <li>Vintage year is important</li> <li>Higher leverage vs core</li> <li>Poor benchmarks</li> </ul>
Non-Core Strategies	<b>Opportunistic</b> <ul style="list-style-type: none"> <li>Return driver: appreciation</li> <li>Primary vehicle: closed-end funds</li> <li>Historical avg. returns: 10-12%</li> <li>Leverage: 60%+</li> <li>Hold period: varies</li> </ul>	Distressed investments, recapitalizations, development, etc.	<ul style="list-style-type: none"> <li>Real estate alpha through capital appreciation with minimal current income</li> </ul>	<ul style="list-style-type: none"> <li>Vehicles are illiquid</li> <li>Vintage year is important</li> <li>High leverage</li> <li>Poor benchmarks</li> </ul>



# RELATIVE EXPECTED RISK RETURN PROFILE



Notes:

- Debt-related strategies can span the illustrative risk / return spectrum depending on the specific strategy
- Manager-specific risk, operations and leverage can skew expected risk / return profile



# GLOSSARY OF TERMS

- **Commitment Amount** – The amount an investor has committed to invest with the General Partner
- **Paid In Capital** – The amount an investor has contributed for investments and management fees
- **Capital to be Funded** – The remaining amount an investor contractually has left to fund its commitments
- **Additional Fees** – Fees that are outside the capital commitment, also includes interest paid/received due from subsequent closings of the fund
- **Cumulative Distributions** – The amount an investor has received from realized and partially realized investments
- **Valuation** – Sum of the fair market value of all investments plus cash
- **Call Ratio** – Calculated by dividing Amount Funded by Capital Committed
- **DPI Ratio** - Calculated by dividing Amount Distributed by Amount Funded
- **Market Exposure** – Calculated by adding Reported Value plus Unfunded Commitments
- **Total Value** – Calculated by adding Amount Distributed and Reported Value. Represents the total amount an investor should expect to receive from their investments
- **Net Benefit** – Calculated by subtracting Total Value by Capital to be Funded plus Additional Fees
- **Total Value to Paid In Capital Ratio** – Calculated by dividing Total Value by Amount Funded. Represents the multiple of the overall cash invested that an investor is expected to receive
- **IRR** - The calculation of the IRR (Internal Rate of Return) takes into consideration the timing of cash contributions and distributions to and from the partnerships, the length of time the investments have been held and the sum of the Reported Value
- **Index Comparison Method (ICM)** – represents the hypothetical IRR of a private investment program that is computed by assuming the fund flows were invested in and out of a publicly traded index. The resulting hypothetical market value of the program is then used with the program's actual cash flows to compute a hypothetical IRR. This hypothetical IRR can be compared with the actual IRR to determine whether the private investment program outperformed the publicly traded index
- **Valuation ICM** – The valuation equivalent that ICM calculates for the public market is called valuation ICM
- **KS PME** – The Kaplan Schoar Public Markets Equivalent is a ratio of the future value of all distributions divided by the future value of all contributions using the index return as the discount rate. The ending valuation is treated as a distribution in this method
- **IRR ICM** – The IRR equivalent that ICM calculates for the public market is called IRR ICM



APPENDIX 4:  
**DISCLAIMERS & DISCLOSURES**

NEPC, LLC

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# DISCLAIMER

- **Past performance is no guarantee of future results.**
- **The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.**
- **Information used to prepare this report was obtained directly from the investment managers or custodians, and market index data was provided by other external sources. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
- **This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.**



# ALTERNATIVE INVESTMENT DISCLOSURES

**In addition, it is important that investors understand the following characteristics of non-traditional investment strategies including hedge funds, real estate and private equity:**

1. Performance can be volatile and investors could lose all or a substantial portion of their investment
2. Leverage and other speculative practices may increase the risk of loss
3. Past performance may be revised due to the revaluation of investments
4. These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms
5. A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value
6. These funds are not subject to the same regulatory requirements as registered investment vehicles
7. Managers may not be required to provide periodic pricing or valuation information to investors
8. These funds may have complex tax structures and delays in distributing important tax information
9. These funds often charge high fees
10. Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager's realm of expertise or contemplated investment strategy





**State of Connecticut**  
**Office of the Treasurer**

SHAWN T. WOODEN  
 TREASURER

June 5, 2020

Members of the Investment Advisory Council (“IAC”)

**Re: Consideration of Finalists for the Emerging Market Debt Fund (“EMDF”) Manager Search**

Dear Fellow IAC Member:

At the June 10, 2020 meeting of the IAC, I will present four firms for the EMDF investment manager assignment for the Connecticut Retirement Plans and Trust Funds (“CRPTF”): Aberdeen Standard Investments Inc., Eaton Vance Management, Payden & Rygel, and Pacific Investment Management Company LLC. This is the culmination of a competitive search process, conducted through a Request for Proposal process.

At the meeting next week, I will review the proposed restructure of the EMDF portfolio which focuses on creating a balanced structure with four complementary strategies, providing the opportunity to achieve stronger risk adjusted returns going forward. Then we will hear brief presentations from each firm that will provide details on their investment philosophy and strategies in this space of the market.

Attached for your review is a recommendation from Chief Investment Officer, Laurie Martin along with an overview of each firm. I look forward to discussing this with you at the June meeting of the IAC and receiving your feedback on these finalists.

Sincerely,

Shawn T. Wooden  
 State Treasurer



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**DECISION**

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**TO:** **Shawn T. Wooden, Treasurer**

**FROM:** **Laurie Martin, Chief Investment Officer**

**CC:** **Steve Meier, Senior Principal Investment Officer**  
**Lyndsey Farris, Principal Investment Officer**  
**Michael Terry, Principal Investment Officer**

**DATE:** **May 29, 2020**

**SUBJECT:** **Emerging Market Debt Fund Recommendation**

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**Summary**

The purpose of this memorandum is to provide the results and recommendation from the Emerging Market Debt Fund (“EMDF”) competitive bid process. On January 15, 2020 the Investment Advisory Council (“IAC”) reviewed the scope of services and project timeline and a Request for Proposal (“RFP”) was issued on January 17, 2020 with a submission deadline of February 7, 2020. The RFP was undertaken in response to turnover in EMDF investment managers over time and the need to reassess the structure of the overall portfolio.

The RFP was well received by the institutional marketplace with 34 firms submitting proposals across 36 strategies which were evaluated by Pension Fund Management (“PFM”) staff with the assistance of the Connecticut Retirement Plans and Trust Funds (“CRPTF”) general consultant Meketa Investment Group (“Meketa”). PFM and Meketa interviewed nine semi-finalist firms by phone during the weeks of March 23<sup>rd</sup>, March 30<sup>th</sup>, and April 6<sup>th</sup> selecting four firms to be considered for addition to the EMDF portfolio. The following memorandum will provide a prospective framework of the EMDF portfolio and a recommendation for the restructuring of the portfolio with the objective of improving efficiency and long term risk adjusted returns.

**EMDF Overview**

The EMDF portfolio will invest primarily in emerging market fixed income securities and currencies denominated both in U.S. dollar and foreign currencies in accordance with the CRPTF asset allocation guidelines. EMDF’s goal is to achieve a long-term, real rate of return above the inflation rate while utilizing a range of manager style techniques to capture excess return and diversify risk. While emerging market fixed income securities are likely to exhibit volatility on a year-to-year basis, that volatility is expected to be diminished over longer periods of time.

The inclusion of an emerging market fixed income class will involve risks associated with international investing, and at the same time provide a source of diversification to other asset classes within the CRPTF given the different economic environments of global economies. The Investment Policy Statement for the two largest components of CRPTF (i.e. Teachers Retirement Fund and State Employees Retirement Fund) allocates a 5% target to EMDF with lower and upper bounds of 0% and 10%, respectively.

**Table 1**  
 Investment Policy Statement for CRPTF's Two Largest Plans  
 As of March 31, 2020

	Current Exposure	Policy Weight	Lower Range	Upper Range
Teachers Retirement Fund	5.7%	5%	0%	10%
State Employees Retirement Fund	5.7%	5%	0%	10%

The EMDF currently consists of two active managers. Payden and Rygel (“Payden”), a higher beta manager with a concentrated portfolio and a holistic view of local and hard currency manages 59% and Ashmore Investment Advisors Limited (“Ashmore”), also a high beta manager with a contrarian viewpoint with a strong value driven approach manages 41% of the EMDF. A previous manager, Fidelity Investments Inc. (“Fidelity”) was terminated due to poor performance on November 27, 2019 and assets were temporarily transferred to the other two managers.

**Table 2**  
 EMDF as of March 31, 2020

Manager	Strategy	Amount (mm)	Percent
Payden and Rygel	Blend (Local and Hard)	1,067	59%
Ashmore Investment Advisors	Blend (Local and Hard)	730	41%
Total		1,797	100%

As a result of the recent pandemic and the shock to oil prices, emerging market debt strategies have seen outflows of over \$41 billion through April 29<sup>th</sup>, resulting in valuations and spreads widening to levels experienced in 2009 at the height of the global financial crisis. While there remains an enormous level of uncertainty for emerging market countries, many sovereign nations should find support through the International Monetary Fund and World Bank’s \$1 trillion lending capacity and a temporary extension of dollar swap lines by the Federal Reserve. Complex and differentiating market dynamics during this crisis emphasize the importance of staying actively managed and hiring experienced partners who have effective strategies that can incorporate the social and political climate.

Recent analysis highlights the fact that the mix of strategies within EMDF is suboptimal. Given the two high beta asset managers that remain in the portfolio, it was determined that the structure was overweight risk and that a more balanced portfolio approach would be more appropriate. Given our outlook for further market volatility in emerging markets; it was an opportunity to refresh our strategy and fix structural issues within the portfolio without becoming over diversified in this space.

### **Request for Proposal Process**

The RFP was issued on January 17, 2020 with a submission deadline of February 7, 2020. Proposals were submitted by 34 firms across 36 strategies which were evaluated by PFM staff with the assistance of the CRPTF general consultant, Meketa.

The RFP respondents were assessed from both a qualitative and quantitative perspective through a review of their organization, investment team, investment philosophy, investment process, investment performance, and management fee proposal. Each respondent was also assessed

within the context of CRPTF's overall investment policy. Subsequent to the initial screening, PFM and Meketa interviewed nine semi-finalist firms by phone during the weeks of March 23<sup>rd</sup>, March 30<sup>th</sup>, and April 6<sup>th</sup> and selected four firms to be considered to manage the assets of the EMDF.

**Table 3**  
EMDF RFP Finalist

Firm Name	Product Name	Investment Style	Investment Approach
Aberdeen Standard Investments Inc.	Emerging Market Debt 50/50	Blended	Bottom Up
Eaton Vance Management	Emerging Markets Debt Opportunities	Opportunistic	Bottom Up
Payden & Rygel	Emerging Markets - USD / Local Currency Blend	Blended	Mix
Pacific Investment Management Company (PIMCO)	PIMCO EM Blended Global Government Bond Strategy	Blended	Mix

### **Restructure of the EMDF**

The objective of restructuring the EMDF is to achieve stronger returns with lower tracking error by balancing different active management strategies to take advantage of different segments of market inefficiencies in emerging markets. The allocations seek to create a complete, all weather portfolio by allowing each manager to target different parts of the market, avoiding overdiversification. These managers are truly “active” managers with higher tracking error, more specific return profiles, and expertise in their particular market strategies.

The EMDF historically had a structural dependency on market risk. During the RFP process in 2016, only a portion of the proposed structure of the portfolio was accepted, resulting in only higher beta managers being added to the plan. Consequently, volatility in emerging markets since 2016 has caused the portfolio to underperform its benchmark. We propose adding some lower beta managers to the portfolio to balance portfolio risk and give PFM more options in a volatile market environment. Having a select number of managers with lower structural dependency on the market will allow for easier oversight of PFM and give managers a better opportunity to produce better return results on a risk adjusted basis. Table 4 provided below presents the historical EMDF performance which reflects a consistent under-performance relative to the index which can be attributed to structural portfolio issues.

**Table 4**  
EMDF Historical Net Performance  
As of March 31, 2020

	YTD	Fiscal YTD	1 Year	3 Year	5 Year	7 Year	10 Year
Emerging Market Debt Fund	-18.06%	-15.94%	-11.90%	-2.18%	1.17%	-0.41%	2.62%
EMDF Total Fund Custom Composite	-14.28%	-10.94%	-6.61%	-0.13%	1.60%	0.16%	3.38%

To improve the EMDF performance we recommend that the portfolio include a manager structure focused on complementary strategies that will achieve stronger returns per dollar of management fees paid and take advantage of market inefficiencies. The managers chosen have uniquely differentiated strategies with replicable returns that produce alpha by taking advantage of structural inefficiencies in this market. This should result in overall stronger risk adjusted return profile than the current portfolio. Table 5 summarizes the portfolio construction and Table 6 and 7 illustrate trailing period returns through February 29, 2020 and calendar year returns of the proposed structure. The recommended strategy is expected to generate a tracking error of approximately 1.4%. The tracking error measures the standard deviation of excess returns relative to the benchmark. The higher the tracking error the greater the volatility of excess returns relative to a benchmark.

**Table 5**  
Proposed EMDF Manager Structure

<b>Manager</b>	<b>EMDF Manager Status</b>	<b>% of Total</b>	<b>Amount</b>
Aberdeen Standard Investments	New	30%	504,000,000
Eaton Vance Management	New	4%	67,000,000
Payden & Rygel	Existing	35%	588,000,000
PIMCO	New	31%	521,000,000
<b>Total</b>		<b>100%</b>	<b>1,680,000,000</b>

**Table 6**  
Proposed Portfolio Structure Trailing Period Returns  
As of February 29, 2020

	<b>YTD</b>	<b>1 Year</b>	<b>3 Year</b>	<b>5 Year</b>
Proposed Portfolio	-1.5%	8.6%	5.8%	5.4%
EMDF Total Fund Custom Composite*	-2.1%	6.7%	4.9%	4.0%

\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

**Table 7**  
Proposed Portfolio Structure Calendar Year Returns

	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>
Aberdeen Standard Investments	16.3%	-7.2%	14.7%	13.0%	-7.9%
Eaton Vance	19.3%	-3.4%	14.0%	11.8%	-3.0%
Payden & Rygel	17.3%	-7.3%	15.6%	NA	NA
PIMCO	16.6%	-3.8%	13.0%	12.3%	-5.1%
<b>Proposed Portfolio</b>	<b>16.9%</b>	<b>-6.0%</b>	<b>14.5%</b>	<b>NA</b>	<b>-NA</b>
<b>EMDF Total Fund Custom Composite*</b>	<b>14.3%</b>	<b>-5.2%</b>	<b>12.8%</b>	<b>10.2%</b>	<b>-7.1%</b>

\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

Historical risk return characteristics of the proposed portfolio structure are provided on Table 8.

**Table 8**  
Proposed Portfolio Structure  
Combined Multi-Manager Historical Risk-Adjusted Returns (gross of fees)  
Trailing 5-Year\*

	<b>Proposed Portfolio</b>	<b>Benchmark**</b>
Common Period Performance:		
Common Period Performance	5.4%	4.0%
Best 3 Months	10.1%	10.3%
Worst 3 Months	-7.0%	-7.0%
Risk Measures:		
Standard Deviation	8.0%	8.0%
Tracking Error	1.4%	NA
Beta	0.97	1.00
Correlation to Benchmark	0.98	1.00
Downside Deviation	4.3%	4.1%
Upside Capture	102%	NA
Downside Capture	90%	NA

Risk-Adjusted Performance:		
Jensen's Alpha	1.4%	NA
Sharpe Ratio	0.53	0.37
Information Ratio	0.94	NA

\*Composite returns calculated monthly with stated composite weightings and monthly underlying fund returns

\*\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

Portfolio characteristics of the proposed structure are summarized in Table 9.

**Table 9**  
Proposed Portfolio Characteristics  
As of February 29, 2020

	Proposed Portfolio	Benchmark*
Credit Quality Breakdown:		
AAA	4%	0%
AA	3%	5%
A	14%	19%
BBB	30%	41%
BB & Below	49%	35%
Region Exposures:		
Africa	18%	11%
Asia	24%	23%
Europe	25%	25%
Latin America	23%	32%
Middle East	9%	9%
Other	1%	0%
Sector Exposures:		
Sovereign (Local Currency)	46%	50%
Sovereign (Hard Currency)	34%	40%
Quasi-Sovereign	11%	10%
Corporate	8%	0%
Cash and Equivalents	1%	0%

\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

The recommended managers have a history of generating excess returns as evidenced on Table 10. When evaluating rolling three-year time periods between May 2014 and February 2020 the portfolio outperformed during 35 of the 35 time periods, generating average excess returns of 1.3%. Similarly, during the rolling five-year time period periods between May 2014 and February 2020, shown in Table 11, the portfolio outperformed during 11 of the 11 time periods, generating average excess returns of 1.3% as well.

**Table 10**  
Managers  
Rolling Three Year Excess Returns vs. Benchmark\*  
Rolling Three Year Periods as of February 2020

	Total Periods	Periods Outperformed	(%)	Average Ann. Excess Return	Max	Min	Range
Aberdeen Standard Investments	59	30	51%	0.4%	6.1%	-3.5%	9.6%
Eaton Vance	72	57	79%	2.3%	7.1%	-3.1%	10.2%
Payden & Rygel	28	18	64%	0.6%	3.4%	-2.1%	5.5%
PIMCO	147	102	69%	0.8%	4.8%	-3.3%	8.1%

\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

**Table 11**  
 Proposed Portfolio Rolling Period Excess Returns vs. Benchmark\*  
 May 2014 to February 2020

	<b>Total Periods</b>	<b>Periods Outperformed</b>	(%)	<b>Average Ann. Excess Return</b>	<b>Max</b>	<b>Min</b>	<b>Range</b>
1 Year	59	51	86%	1.3%	4.3%	-0.9%	5.2%
3 Year	35	35	100%	1.3%	1.9%	0.9%	1.0%
5 Year	11	11	100%	1.3%	1.5%	1.1%	0.4%

\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

Table 12 provided below provides summary information on the recommended firms and their portfolio characteristics.

**Table 12**  
 Manager Overviews

	<b>Aberdeen Standard</b>	<b>Eaton Vance</b>	<b>Payden &amp; Rygel</b>	<b>PIMCO</b>
Firm Location	Philadelphia, PA	Boston, MA	Los Angeles, CA	Newport Beach, CA
Firm Inception	1983	1979	1983	1971
Ownership Structure	Publicly Listed	Publicly Listed	California C-Corporation	Majority-owned subsidiary of Allianz with minority interests held by AAM's affiliates and current and former officers of PIMCO
Strategy Name	Emerging Markets Debt Local and Hard Currency	Emerging Markets Debt Opportunities	Emerging Markets - USD / Local Currency Blend	PIMCO EM Blended Global Government Bond Strategy
Strategy Inception	May 2014	April 2013	July 2002	March 2010

Manager summaries are provided as attachments which review each firm's organization, investment team, investment philosophy, investment process, performance and management fee proposal. Additionally, the legal, compliance and policy reviews are included as part of the summaries.

## ABERDEEN STANDARD INVESTMENTS

### Organization

Aberdeen Asset Management was founded in 1983 in Aberdeen, UK, and has expanded to include offices in Asia, Europe, and North America. In August 2017, Aberdeen Asset Management merged with Standard Life, another large publicly-traded financial services firm based in Edinburgh, Scotland, UK. The firm manages \$644.5 billion in assets under management across a mix of strategies. The emerging markets debt strategy was inceptioned in 1999 and has approximately \$2.7 billion in assets. The firm manages \$16.9 billion in various Emerging Markets Debt strategies. Emerging markets continue to be a focus area for Aberdeen as the firm manages a suite of emerging markets equity and debt products.

### Investment Team

Co-portfolio managers Brett Diment and Edwin Gutierrez are the founders of the emerging markets debt strategy and have worked together in this capacity for 16 years. They joined Aberdeen when the firm acquired Deutsche Asset Management's Philadelphia and London fixed income businesses in 2005. Aberdeen's emerging markets debt team has grown steadily as assets have risen, and they continue to bolster their team of analysts. The team is organized by specialization, either sovereign or corporate, and they are primarily based in London and Singapore. Most team members have a dual role as portfolio managers and research analysts.

### Investment Philosophy

Aberdeen seeks to exploit the mispricing opportunities offered by the inefficient emerging markets debt asset class by emphasizing a total return objective in a well-diversified portfolio. The approach is grounded in team-based decision making. It focuses on using comprehensive, bottom-up research to take high-conviction investment positions that express the firm's long term investment views while ignoring short term volatility.

### Investment Process

Aberdeen's three-step investment process begins with country-specific research that covers both qualitative (political risk, structural reform, monetary policy, and fiscal policy) and fundamental factors (economic strength, economic cycle, solvency, and liquidity). After reviewing the market, the team quantitatively analyzes all available instruments (US Dollar bonds, currencies, and domestic bonds) in individual countries to uncover relative value opportunities. Security selection decisions are based on forward-looking risk and return calculations, and an assessment of an issue's potential impact on key portfolio risk measures such as duration, correlation, and beta exposure. The team has a specific focus on fundamental credit research and building a library of research reports. Additionally, the team will hold a meaningful allocation to frontier markets and will invest in countries that are coming to the market to issue debt for the first time. Portfolio construction takes place with a view to duration, the correlation between assets, beta exposures, volatility, and tracking error. All team members are involved in the decision-making process, but Brett Diment has ultimate decision-making authority.

## Performance

Trailing Period Returns (gross of fees)  
As of February 29, 2020

	1 Year	3 Year	5 Year	7 Year	10 Year
Aberdeen Standard	7.9%	5.0%	4.6%	NA	NA
Benchmark*	6.7%	4.9%	4.0%	2.1%	4.5%

\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

Calendar Year Returns (gross of fees)  
As of February 29, 2020

	2019	2018	2017	2016	2015	2014	2013	2012
Aberdeen Standard	16.3%	-7.2%	14.7%	13.0%	-7.9%	NA	NA	NA
Benchmark*	14.3%	-5.2%	12.8%	10.2%	-7.1%	0.7%	-7.1%	17.2%

\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

## Management Fee

Fee Schedule	Mandate Size	Estimated Effective Fee
Mandate \$200-\$600mm, 0.40% on the first \$300mm and 0.375% on the next \$300mm	504,000,000	0.39%

## Pending Litigation (provided by legal)

Through its disclosure, Aberdeen Standard Investments Inc. (“Aberdeen”), states it has no material legal or non-routine regulatory matters. Aberdeen has adequate procedures in place to undertake internal investigations of its employees, officers and directors.

## **Comments to Contract Terms:**

Aberdeen would seek to modify Connecticut’s most favored nations provision by limiting it to a similar size, strategy and separate account services. Aberdeen would further seek to exclude other clients with multiple Aberdeen mandates and clients that have performance fees in the fee structure. Aberdeen would request modifications to the insurance section so as to conform with its current insurance policies. Aberdeen does not use the phrase “affirmative action – equal opportunity employer” in solicitations and advertisements for employees. Because Aberdeen operates in states outside of Connecticut, Aberdeen believes this phrase’s meaning may vary by state and does not want to violate any other state law. Aberdeen commented that it has programs in place to address diversity and inclusion. With respect to internal investigations and insurance claims, Aberdeen does not provide details of the commencement of investigations or insurance claims to its clients. Aberdeen is willing to provide a monthly verification of insurance coverage and advance notice of a complete cancellation of insurance coverage. Regarding internal investigations, Aberdeen is willing to provide a notice on investigations dealing with fraud or major headline risk issues.

## Environmental, Social, Governance Analysis (“ESG”) (provided by Policy Unit)

Aberdeen scored a 1 in the Office of The Treasurer’s internal ESG scoring system based on the firm’s responses to Attachment M: Evolution and Implementation of Sustainable Practices. A score of 1 indicates the firm’s response contains a detailed description of ESG philosophy and integration within their product. It also indicates the firm’s response indicates the firm practices

ongoing ESG assessment with an established framework, is a member of sustainability-oriented organizations, and has enhanced screening of firearms and/or higher-risk sectors.

Overall, Aberdeen practices robust integration of ESG considerations in its investment processes and across asset classes. While the firm does not currently have a policy on firearms, they are actively developing a policy statement that outlines their approach to exposure in this area.

### **Compliance Review (provided by Compliance)**

#### **I. Review of Required Legal and Policy Attachments**

Aberdeen Standard Investments Inc. (“Aberdeen”) a Pennsylvania-based firm, completed all required legal and policy attachments, except *Legal and Policy Attachment B, Nondiscrimination Affidavit*, which Aberdeen represented it will complete if selected. Aberdeen disclosed no third party fees, campaign contributions, known conflicts, gifts or legal/regulatory proceedings.

Compliance Note: If selected, a duly executed *Legal and Policy Attachment B, Nondiscrimination Affidavit*, must be submitted.

#### **II. Workforce Diversity (See Also 3 year Workforce Diversity Snapshot Page Attached)**

As of December 2019, Aberdeen employed 388, 102 more than the 286 employed in December 2017. Nine women and 5 minorities are Executive/Senior Level Officials and Managers. For the 3 year period 2017-2019, the firm promoted 24 women and 16 minorities within the ranks of professionals or managers. Women and minorities represent 26% and 14% respectively, of Executive/Senior Level Officials and Managers, i.e., those serving at the highest level of the firm.

#### **Commitment and Plans to Further Enhance Diversity**

Aberdeen is focused on improving gender and minority representation. The company's leadership team is accountable for Diversity & Inclusion and they review and track progress regularly. A 33% gender target is set for Board and Executive Level for June 2020 (and in the UK and global population, the target is 50%, with a 3% tolerance threshold). Regarding minority representation, the organization is focused on removing barriers for diverse candidates, particularly ethnic minorities. Aberdeen has partnered with Gateway to Leadership in the Americas, and Sponsors for Educational Opportunity in the UK.

#### ***Workforce Statistics***

#### **For Executive/Senior Level Officials and Managers:**

- Women held 26% (9 of 35) of these positions in December 2019, down from 33% (9 of 27) in both December 2018 and December 2017.
- Minorities held 14.3% (11.4% Asian and 2.9% Hispanic) (5 of 35) of these positions in December 2019, down from 14.8 % (7.4% Asian and 7.4% Hispanic) (4 of 27) in December 2018, and 18.5% (18.5% Asian) (5 of 27) in December 2017.

### **At the Management Level overall:**

- Women held 30% (49 of 161) of these positions in December 2019, up from 27% (35 of 131) in December 2018, and 26% (33 of 128) in December 2017.
- Minorities held 17.4% (11.2% Asian, 5% Hispanic and 1.2% Black) (28 of 161) of these positions in December 2019, up from 13% (6.1% Asian, 6.1% Hispanic and 0.8% Black) (17 of 131) in December 2018 and 17.2% (12.5% Asian, 3.9% Hispanic and 0.8% Black) (22 of 128) in December 2017.

### **At the Professional Level:**

- Women held 31% (54 of 174) of these positions in December 2019, down from 37% (61 of 165) in December 2018, and 39% (61 of 158) in December 2017.
- Minorities held 18.4% (8% Asian, 6.9% Hispanic, 2.3% Black and 1.1% Two or More Races) (32 of 174) of these positions in December 2019, up from 13.9% (7.9% Asian, 3.6% Hispanic, 1.8% Black and 0.6% Two or More Races) (23 of 165) of these positions held in 2018, but down from 19.6% (9.5% Asian, 7.6% Hispanic and 2.5% Black) (21 of 158) in December 2017.

### **Firm-wide:**

- Women held 50% (192 of 388) of these positions in December 2019, down from 55% (196 of 356) in December 2018, and 68% (195 of 286) in December 2017.
- Minorities held 19.6% of these positions (9% Asian, 6.7% Hispanic, 3.1% Black and 0.8% Two or More Races) (76 of 388) in 2019, up from 18% (7.3% Asian, 7.3% Hispanic, 2.8% Black and 0.6% Two or More Races) (64 of 356) in 2018, but down from 23.4% (12.6% Asian, 7% Hispanic, 3.5% Black and 0.3% Two or More Races) (67 of 286) in 2017.

## **III. Corporate Citizenship**

### **Charitable Giving:**

Since its foundation, Aberdeen has actively supported the communities where it does business, and has globally partnered with charities in local communities. The firm seeks partnerships that engage employees and provide opportunities to use their time and skills to create additional value. Aberdeen provides three paid days for employee volunteering and offers a company match for employees' donations to a charity of their choice. In 2018, its total charitable giving was £3.2million, and employees volunteered 15,118 hours.

### **Internships/Scholarships:**

Aberdeen's internships are geared toward students going into their senior year at university. Internships provide a glimpse of what potential employees can achieve. Exceptional performance during an internship can help fast-track interns to a second interview in the firm's Graduate Recruitment process. Interns interview for a position in the Early Career Program during their summer internship, and the firm prefers recruiting from that program, whose goal is to develop Analysts. Most of the firm's graduate

positions are filled by interns who spent the summer with the firm. For the calendar year 2018, interns were 20% minority and 40% women. The firm does not currently provide scholarships.

*Procurement:*

It appears Aberdeen does not have a formal policy at this time for fostering relationships with women/minority/and emerging businesses but the firm has trading relationships in the equity and fixed income space with MWBE brokers. Aberdeen has been working with a consultant, Mosaic, to help it strengthen existing relationships and develop new relationships amongst the MWBE brokerage community. Mosaic has already assisted Aberdeen to identify several MWBE firms that have experience in the EMD space.

## EATON VANCE MANAGEMENT

### Organization

Eaton Vance Management is based in Boston, Massachusetts, and is a wholly-owned subsidiary of Eaton Vance, a publicly-traded company. Voting shares are held in a trust, and voting trustees are officers of Eaton Vance or its affiliates. Non-voting shares are publicly traded on the New York Stock Exchange (NYSE:EV). Eaton Vance was formed by the 1979 merger of two Boston-based investment management firms: Eaton & Howard, Inc., founded in 1924, and Vance, Sanders & Company, organized in 1934. The firm now has \$213.4 billion in assets under management as of December 31, 2019. The Emerging Markets Debt Opportunities was launched in 2013 and has \$288 million in assets.

### Investment Team

Portfolio managers Michael Cirami, Eric Stein, and John Baur have been managing the strategy since inception. Michael Cirami is the coordinating portfolio manager for the strategy and has final decision-making authority. Analysts are country specialists, and more than one team member is covering each country. The team has invested in emerging and frontier markets for over 20 years through the Global Macro Absolute Return strategy (a large flagship long/short credit fund that is around 80% EM Debt with an inception date of 1996). The same EMD portion of the team manages three dedicated long-only EMD strategies, including the Emerging Markets Debt Opportunities (EMDO) blended strategy (inception April 2013).

### Investment Philosophy

The team believes:

1. The universe is vast and differentiated, sourcing ideas from the broadest possible opportunity set.
2. Countries matter most: they concentrate their research on countries exhibiting structural change.
3. Mind your risk factors: they take active positions only in risk factor(s) for which they are adequately compensated and offset the rest.
4. Local trading adds measurable value: they embrace logistical challenges as opportunities to add operational alpha in clients' portfolios.

### Investment Process

The team relies on short term factors, intermediate-term fundamentals, and long-term structural trends to form views about specific countries. They see themselves as “country pickers” and believe that countries that have improving economic freedom are some of the best places to invest. The strategy is benchmark agnostic; benchmark weights do not play a role in determining position sizing or portfolio construction. It is usually more concentrated than the benchmark and comprises only the best ideas. Country analysis and access to markets are the first steps in the investment process. Eaton Vance has worked over the years to build traditional and non-traditional liquidity sources to correctly access markets. When conducting country analysis, the team’s primary goal is to determine a country’s direction of change over the intermediate to long term (1-5 years). Once the team has conducted the fundamental work on each country, they evaluate securities through risk and return framework. Then the team submits investment positions for potential inclusion in the portfolio. When constructing the portfolio, the team uses a

tier system that allows countries with stable or improving country fundamentals, high return potential and, ample liquidity to have a higher weight within the portfolio.

### Performance

Trailing Period Returns (gross of fees)  
As of February 29, 2020

	1 Year	3 Year	5 Year	7 Year	10 Year
Eaton Vance	13.3%	8.4%	6.9%	NA	NA
Benchmark*	6.7%	4.9%	4.0%	2.1%	4.5%

\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

Calendar Year Returns (gross of fees)  
As of February 29, 2020

	2019	2018	2017	2016	2015	2014	2013	2012
Eaton Vance	19.3%	-3.4%	14.0%	11.8%	-3.0%	1.2%	NA	NA
Benchmark*	14.3%	-5.2%	12.8%	10.2%	-7.1%	0.7%	-7.1%	17.2%

\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

### Management Fee

Fee Schedule	Mandate Size	Estimated Effective Fee
0.30% flat fee. Fee proposal represents a significant discount for early institutional separate account clients	67,000,000	0.30%

### Pending Litigation (provided by legal)

Through its disclosure, Eaton Vance Management (“Eaton Vance”), indicates there were two legal matters within the last five years. In April 2017, a former options trader in public equity at Eaton Vance, was indicted for federal securities fraud and was sent to prison for thirteen months. An order was obtained by Eaton Vance to recover monies from him in connection with this case. Since this time, Eaton Vance hired an independent third-party forensic fraud specialist and an independent third-party compliance specialist to analyze any potential harm caused by the former employee’s conduct and to evaluate Eaton Vance’s compliance procedures and controls. Eaton Vance strengthened its compliance and ethics training, controls and policies including updating its Code of Ethics to prohibit employees from trading options in their personal accounts. Further, Eaton Vance instituted a semi-annual process of reviewing employee data from a third-party service provider engaged in identifying non-disclosed personal brokerage accounts. It appears the situation involved a rogue employee, Eaton Vance took remedial steps, and it does not appear to be a systemic problem.

Second, a former employee sued Eaton Vance for allegedly charging unreasonable fees in its 401K program. The suit was settled in May 2019.

Eaton Vance states there are no current or ongoing internal investigations of the Emerging Markets Debt investment professional who would be closely involved with the services sought by the Office of the Treasurer.

### **Comments to Contract Terms:**

With respect to Connecticut's provisions around trading documentation, Eaton Vance stated that it could not comply on day one, but would make reasonable efforts to comply through amendments to its master umbrella ISDA with counterparties. Eaton Vance does not have operations within the State of Connecticut and questioned the applicability of Executive Order No. 17, which requires contractors to post job openings with the office of the Connecticut State Employment Service. After discussing the Executive Order with the Legal Unit and internally at Eaton Vance, it agrees that the Executive Order is acceptable. Eaton Vance committed to sending Connecticut additional provisions in the IMA that would need to be negotiated but it did not believe any issues would be deal-breakers. For example, although open to an MFN provision, Eaton Vance stated that it would seek carve-outs to Connecticut's standard MFN.

### **Environmental, Social, Governance Analysis (“ESG”) (provided by Policy Unit)**

Eaton Vance scored a 2 in the Office of The Treasurer's internal ESG scoring system based on the firm's responses to Attachment M: Evolution and Implementation of Sustainable Practices. A score of 2 indicates the firm's response contains a detailed description of ESG philosophy and integration within their product. It also indicates the firm's response indicates the firm practices ongoing ESG assessment with an established framework and is a member of sustainability-oriented organizations.

Overall, Eaton Vance employs ESG analysis in its investment decisions as part of their risk assessment process. The company is also affiliated with Calvert Investment Management, one of the founding signatories of the PRI. Calvert's ESG analysis is available to Eaton Vance's investment team. Eaton Vance demonstrated an understanding of material risks associated with firearms but disclosed that enhanced scrutiny or policies were not applicable to their Emerging Markets Debt team.

### **Compliance Review (provided by Compliance)**

#### **I. Review of Required Legal and Policy Attachments**

EATON VANCE MANAGEMENT (“Eaton Vance”) a Massachusetts-based firm, completed all required legal and policy attachments. Eaton Vance disclosed no third party fees, campaign contributions, known conflicts, or gifts. Its disclosure of legal/regulatory proceedings is being reviewed by the Legal Unit.

#### **II. Workforce Diversity (See Also 3 year Workforce Diversity Snapshot Page Attached)**

As of March 2020, Eaton Vance employed 850, 7 less than the 857 employed in December 2018. One woman is an Executive/Senior Level Official and Manager; no minorities serve at this level. For the 3 year period 2017-2019, the firm promoted 51 women and 25 minorities within the ranks of professionals or managers. At all levels, women are much better represented throughout the firm than minorities.

### **Commitment and Plans to Further Enhance Diversity**

Eaton Vance has a Diversity & Inclusion (D&I) Leadership council whose vision is to set the strategy and direction for D& I across the organization. Emphasis is on talent acquisition, retention and development. The firm participates in several development programs with external diversity partner organizations, such as Simmons, Mass Conference for Women, Toigo, Prism, The Partnership, Inroads and NABA. Other partners include, ALPFA (Association of Latino Professionals in Finance & Accounting),

Bentley Center for Women in Business, HRC (Human Rights Campaign), ICI (Investment Company Institute), and NAAAP (National Association of Asian American Professionals). The organization's D& I strategy includes, increasing referrals by asking manager/employees to leverage their industry contacts. The following are Hiring Targets: Interns/Co-Ops 30% Ethnically Diverse, 40% Female, 60% Male; Non-Officers 30% Ethnically Diverse, 40% Female, 60% Male; Officers 20% Ethnically Diverse, 40% Female, 60% Male.<sup>1</sup>

#### Workforce Statistics

##### **For Executive/Senior Level Officials and Managers:**

- Women held 20% (1 of 5) of these positions in all 3 years reported (2018-2020).
- Minorities held 0% (0 of 5) of these positions in all 3 years reported (2018-2020).

##### **At the Management Level overall:**

- Women held 30% (63 of 209) of these positions in March 2020, up from 27% (58 of 216) in December 2019, and 28% (63 of 223) in December 2018.
- Minorities held 10.5% (5.3% Asian, 1.4% Hispanic, 2.4% Black and 1.4% Two or More Races) (22 of 209) of these positions in March 2020, up from 10.2% (5.1% Asian, 1.4% Hispanic, 2.3% Black and 1.4% Two or More Races) (22 of 216) in December 2019, and 9.4% (4.5% Asian, 1.3% Hispanic, 2.2% Black and 1.3% Two or More Races) (21 of 223) in December 2018.

##### **At the Professional Level:**

- Women held 37% (186 of 503) of these positions in March 2020, down from 40% (198 of 500) in December 2019, and 40% (190 of 480) in December 2018.
- Minorities held 23.3% (11.9% Asian, 4.2% Hispanic, 4.8% Black, 2% Two or More Races and 0.4% American Indian or Alaskan Native) (117 of 503) of these positions in March 2020, up from 22.6% (11.6% Asian, 3.8% Hispanic, 4.8% Black, 1.8% Two or More Races and 0.6% American Indian or Alaskan Native) (113 of 500) in December 2019, and 21% (1.5% Asian, 2.9% Hispanic, 4.2% Black, 1.9% Two or More Races and 0.6% American Indian or Alaskan Native) (101 of 480) in December 2018.

##### **Firm-wide:**

- Women held 59% (501 of 850) of these positions in March 2020, down from 60% (521 of 862) in December 2019, and 61% (519 of 857) in December 2018.
- Minorities held 22.8% of these positions (11.2% Asian, 4.6% Hispanic, 5.1% Black, 1.8% Two or More Races and 0.2% American Indian or Alaskan Native) (194 of 850) in March 2020, up from 20.9% (9.9% Asian,

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<sup>1</sup> Eaton Vance 2019 Diversity and Inclusion Program Overview.

3.9% Hispanic, 5.1% Black, 1.5% Two or More Races and 0.5% American Indian or Alaskan Native) (180 of 862) of these positions in December 2019, and 19.4% (9.5% Asian, 3.4% Hispanic, 4.3% Black, 1.8% Two or More Races and 0.5% American Indian or Alaskan Native) (166 of 857) in December 2018.

### **III. Corporate Citizenship**

#### *Charitable Giving:*

Eaton Vance is committed to giving back to the communities where its employees live and work.

Emphasis is placed on improving the lives of children, adults and families. The organization provides a combination of financial support and volunteerism. Fields supported include, health, education, human services, arts, community development and culture. Eaton Vance has a Making A Difference Committee whose goal is ensure good corporate citizenship. Specific causes supported include Special Olympics, United Way and the Jimmy Fund. Best Buddies, an international organization that supports individuals with intellectual and developmental disabilities has benefitted from fundraising to the tune of over \$1.3 million. The firm also has a matching gifts program; employee contributions are matched up to \$2000 per employee per year.

#### *Internships/Scholarships:*

The firm offers internships throughout the organization. Each department has specific target goals for intern hires. For the 12 month period ending 1/31/20 the intern/co-op program included 25 hires, which were 36% females and 68% diverse. The firm does not have a scholarship program.

#### *Procurement:*

Although Eaton Vance does not have a formal policy at this time for fostering relationships with women/minority/and emerging businesses, in 2019 its diverse spend with women and minority-owned businesses was \$4.8 million.

## PAYDEN AND RYGEL

### Organization

Payden & Rygel was founded in 1983 in Los Angeles, California, and it has expanded to have other offices around the world. The firm is 100% employee-owned with ownership distributed among 30 active members of senior management, and it is majority women-owned. Payden had \$119.1 billion in assets under management as of December 2019, of which \$12.7 billion are in Emerging Markets Debt strategies and \$3.5 billion are in this strategy.

### Investment Team

Portfolio manager Kristin Ceva is a Managing Director and Head of Global Fixed Income for the firm. Ms. Ceva joined Payden & Rygel in 1998 to expand the firm's emerging markets debt footprint. She is supported by four emerging markets strategists and two country analysts, a portfolio analyst, and a dedicated emerging markets trader. In addition, the emerging markets debt team draws on the expertise of the firm's 14-person global staff of analysts, economists, and traders. The team is very experienced, with an average of 15 years working in the investment industry and 9 years at Payden & Rygel.

### Investment Philosophy

The key tenet of Payden & Rygel's approach is that risk management should be the primary focus of active fixed income management. The team assesses sovereign, corporate, and local currency bonds together rather than separately. Given the significant variability across emerging market countries from an economic standpoint, the investment team feels that this holistic analysis improves their understanding of relative value.

### Investment Process

The team produces a medium-term quarterly global economic outlook. They probability-weight at least three macroeconomic scenarios, which serve as the starting point for a detailed forecasting process across interest rates, credit, and currency. The investment team identifies and scores on a one to five scale, the economic factors that they believe will be influential in determining country performance. The weights are enhanced by statistical analysis of the historical determinants of market movements and an analyst's qualitative judgment. The resulting score is an important contributor to the team's country return expectations. The team generates risk-adjusted return forecasts used in the asset allocation process. Sovereign credit investment decisions are based on fair value estimates and yield spread relationships within and between countries. Corporate credits are selected based on relative spread analysis, an assessment of comparable firms globally, and the team's country-specific economic outlook. The team has tight risk controls and aims to have a higher quality and lower volatility portfolio than peers. Corporate exposure is limited to 35%, local currency exposure is limited to 40%, and the team rarely invests in securities rated CCC or below. The team emphasizes liquidity and quality, and will not invest in distressed corporates, equities, structured products, or credit derivatives.

## Performance

Trailing Period Returns (gross of fees)  
As of February 29, 2020

	1 Year	3 Year	5 Year	7 Year	10 Year
Payden & Rygel	7.6%	5.5%	NA	NA	NA
Benchmark*	6.7%	4.9%	4.0%	2.1%	4.5%

\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

Calendar Year Returns (gross of fees)  
As of February 29, 2020

	2019	2018	2017	2016	2015	2014	2013	2012
Payden & Rygel	17.3%	-7.3%	15.6%	NA	NA	NA	NA	NA
Benchmark*	14.3%	-5.2%	12.8%	10.2%	-7.1%	0.7%	-7.1%	17.2%

\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

## Management Fee

Fee Schedule	Mandate Size	Estimated Effective Fee
0.36% on the first \$250mm, 0.31% thereafter	588,000,000	0.331%

## Pending Litigation (provided by legal)

In its disclosure to the Office of the Treasurer, Payden & Rygel (“Payden”), discloses states (i) it has no material legal or non-routine regulatory matters, (ii) no material claims under its fidelity, fiduciary or E&O insurance policies, and (iii) no ongoing internal investigations to report. Payden states it has adequate procedures in place to undertake internal investigations of its employees, officers and directors.

## **Comments to Contract Terms:**

Payden does not have any modifications to Connecticut’s standard contract. It is noted that through a prior extension to Payden’s contract with the State for management of the liquidity fund in January 2019, Payden agreed to obtain cyber security insurance. Payden has obtained cyber insurance coverage.

## Environmental, Social, Governance Analysis (“ESG”) (provided by Policy Unit)

Payden scored a 1 in the Office of The Treasurer’s internal ESG scoring system based on the firm’s responses to Attachment M: Evolution and Implementation of Sustainable Practices. A score of 1 indicates the firm’s response contains a detailed description of ESG philosophy and integration within their product. It also indicates the firm’s response indicates the firm practices ongoing ESG assessment with an established framework, is a member of sustainability-oriented organizations, and has enhanced screening of firearms and/or higher-risk sectors.

Overall, Payden has a comprehensive approach to integrating ESG considerations into its investment processes, at the research-level and through the practice of active monitoring of

current investments. The company does not have a firearms policy but has the capability to ensure compliance with any client investment policy through the use of exclusionary screens.

### **Compliance Review (provided by Compliance)**

#### **I. Review of Required Legal and Policy Attachments**

PAYDEN & RYGEL (“Payden”) a California-based firm, completed all required legal and policy attachments. Payden disclosed no third party fees, campaign contributions, known conflicts, gifts or pending legal/regulatory proceedings.

#### **II. Workforce Diversity**

As of December 2019, Payden employed 182, 19 more than the 163 employed in December 2017. Ten women and 9 minorities are Executive/Senior Level Officials and Managers. For the 3 year period 2017-2019, the firm promoted 10 women and 10 minorities within the ranks of professionals or managers. While women and minorities represent 26% and 24%, respectively of Executives/Senior Level Officials and Managers, both groups are represented in much greater numbers below Management.

#### **Commitment and Plans to Further Enhance Diversity**

Payden is a majority women-owned firm. Beyond its CEO and other female shareholders, many of the firm’s main strategies, asset classes, and business areas are led by women. However, Payden defines diversity more broadly than its leadership as a women-owned, women-led firm. Included in its broader definition, is the representation of minority cultures and backgrounds who bring different perspectives, and who approach investment decision-making and problem-solving from different and unique standpoints. Payden works closely with industry groups such as the CFA Institute and the North American Diversity Project started by NICSA to improve the finance industry’s diversity profile. Among several other organizations, Payden supports the United Negro College Fund (UNCF) – of note, a senior partner is co-chair of UNCF’s New England Advisory Council. The UNCF invests in better futures for students, communities, and the nation by helping African Americans and other students of color go to and through college.

#### **Workforce Statistics**

##### **For Executive/Senior Level Officials and Managers:**

- Women held 26% (10 of 38) of these positions in December 2019, up slightly from 25% (10 of 40) in December 2018, but down from 29% (10 of 35) in December 2017.
- Minorities held 23.7% (15% Asian, 5.3% Hispanic and 2.6% Black) (9 of 38) of these positions in December 2019, up from 22.5 % (15% Asian, 5% Hispanic and 2.5% Black) (9 of 40) in December 2018, and 14.3% (5.7% Asian, 5.7% Hispanic and 2.9% Black) (5 of 35) in December 2017.

##### **At the Management Level overall:**

- Women held 26% (10 of 38) of these positions in December 2019, up slightly from 25% (10 of 40) in December 2018, but down from 29% (10 of 35) in December 2017.

- Minorities held 23.7% (15% Asian, 5.3% Hispanic and 2.6% Black) (9 of 38) of these positions in December 2019, up from 22.5% (15% Asian, 5% Hispanic and 2.5% Black) (9 of 40) in December 2018 and 14.3% (5.7% Asian, 5.7% Hispanic and 2.9% Black) (5 of 35) in December 2017.

#### **At the Professional Level:**

- Women held 34% (44 of 130) of these positions in December 2019, down slightly from 35% (45 of 130) in December 2018, and 35% (39 of 113) in December 2017.
- Minorities held 52.3% (37.7% Asian, 10% Hispanic, 3.8% Black and 0.8% American Indian or Alaskan Native) (68 of 130) of these positions in December 2019, down from 46.9% (34.6% Asian, 7.7% Hispanic, 3.8% Black and 0.8% American Indian or Alaskan Native) (61 of 130) of these positions held in 2018, and 46.9% (32.7% Asian, 9.7% Hispanic, 3.5% Black and 0.9% American Indian or Alaskan Native) (53 of 113) in December 2017.

#### **Firm-wide:**

- Women held 37% (67 of 182) of these positions in December 2019, 37% (68 of 184) in December 2018, down from 39% (63 of 163) in December 2017.
- Minorities held 47.3% of these positions (31.9% Asian, 11.5% Hispanic, 3.3% Black and 0.5% American Indian or Alaskan Native) (86 of 182) in 2019, down from 42.9% (29.3% Asian, 9.8% Hispanic, 3.3% Black and 0.5% American Indian or Alaskan Native) (79 of 184) in 2018, but up from 41.7% (26.4% Asian, 11.7% Hispanic, 3.1% Black and 0.6% American Indian or Alaskan Native) (68 of 163) held in 2017.

### **III. Corporate Citizenship**

#### **Charitable Giving:**

Payden seeks to improve the quality of life in local communities where its offices and clients are located, prioritizing the support of community service, educational and cultural programs. For several decades, it has provided financial support for a variety of organizations and causes, including schools, museums, community outreach, and other non-profit organizations. Payden encourages employees to give time and financial aid to causes of their choice. The firm's matching gift program matches employee donations to tax-exempt educational, cultural and healthcare organizations. A small sample of non-profit organizations Payden has supported include: Big Brothers & Big Sisters of Los Angeles, Los Angeles Mission, Los Angeles Philharmonic, Salvation Army, Union Rescue Mission, and United Way Los Angeles. The State of Connecticut has benefited from Payden's corporate citizenship activities through its financial support and employee involvement in the following: Cardinal Shehan Center, Derby High School and Community, Keeler Tavern Museum, Ridgefield Symphony, United Way Connecticut, Urban League of Southern Connecticut.

*Internships/Scholarships:*

The firm provides internship programs, mentoring relationships, job placement, tutoring, and special programs, including, through UNCF, it supports 60,000 students with scholarships for 37 private historically black colleges and universities. Each academic year Payden provides full scholarships and internships for nine minority students in both its Los Angeles and Boston offices through the Corporate Work Study Program for students of the Cristo Rey Network, which consists of 35 schools across 22 U.S. states. Cristo Rey is a network of preparatory schools that support economically underserved youth. The firm has supported Cristo Rey since its inception in 2002.

*Procurement:*

It appears Payden does not have a formal policy at this time for fostering relationships with women/minority/and emerging businesses but as a majority women owned firm it is committed to diversity and acts to promote diversity by supporting diverse supplier relationships and encouraging diversity and inclusion in the financial industry.

## PACIFIC INVESTMENT MANAGEMENT COMPANY (PIMCO)

### Organization

PIMCO is located in Newport Beach and is a majority-owned subsidiary of AAM, a subsidiary of Allianz SE, a financial services company based in Germany. The firm was founded in 1971 and now totals \$1.9 trillion in assets under management across strategies as of December 2019. The PIMCO Emerging Markets Blended Global Government Bond Strategy was incepted in 2006 and has close to \$1.2 billion in assets.

### Investment Team

The strategy is managed in a team-based approach wherein each member of the EM team is expected to contribute to research, idea generation, portfolio construction, trading, and risk management. This team is comprised of nearly 30 dedicated EM professionals whose backgrounds range from macroeconomic research to quantitative analysis to specialists in each of the areas in EM. In addition to these dedicated EM portfolio managers, over 30 credit analysts (out of a total of over 65) cover quasi-sovereign and corporate issuers from emerging countries and significantly contribute to the formation of country views from the bottom-up.

### Investment Philosophy

PIMCO seeks to generate strong risk-adjusted returns independently of the market cycle. Their approach is based on three principles to bring discipline and consistency into their process. The first principle involves analyzing from every angle as they believe that no single approach holds the key to unlocking alpha. Secondly, they strive to avoid concentrations to protect against low probability/ high impact events. Lastly, the emerging markets team looks for ways to be different than the crowd.

### Investment Process

The investment process centers on the Emerging Markets Portfolio Committee (EMPC), comprised of nine senior members with Pramol Dhawan as chair. The EMPC meets several times per week and oversees building a model portfolio for all emerging markets strategies. PIMCO employs internal ratings that consider country fundamentals, political landscape, reserve levels, debt profile, and contingency measures. The EMPC then blends PIMCO's top-down views, which are developed through various forums, into the emerging markets process. Views are determined on a team basis and formalized through discussion and debate within the Emerging Markets Portfolio Committee ("EMPC"), a forum that meets 2-3 times per week. Pramol Dhawan, Head of the Emerging Markets, is the chair of the EMPC and has final decision-making authority.

### Performance

Trailing Period Returns (gross of fees)  
As of February 29, 2020

	1 Year	3 Year	5 Year	7 Year	10 Year
PIMCO	9.0%	6.3%	5.7%	3.4%	5.7%
Benchmark*	6.7%	4.9%	4.0%	2.1%	4.5%

\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

Calendar Year Returns (gross of fees)  
As of February 29, 2020

	2019	2018	2017	2016	2015	2014	2013	2012
PIMCO	16.6%	-3.8%	13.0%	12.3%	-5.1%	1.7%	-7.2%	16.8%
Benchmark*	14.3%	-5.2%	12.8%	10.2%	-7.1%	0.7%	-7.1%	17.2%

\*Benchmark 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

**Management Fee**

Fee Schedule	Mandate Size	Estimated Effective Fee
0.475% on the first \$100mm, 0.40% thereafter	521,000,000	0.414%

**Pending Litigation (provided by legal)**

In its disclosure to the Office of the Treasurer, Pacific Investment Management Company LLC (“PIMCO”), discusses the following legal matters:

- In April 2018, PIMCO was sued by a PIMCO employee in California state court, alleging the employee received unequal pay based on gender and that she was the subject of age discrimination. In November 2018, the parties reached a settlement in the matter and it was dismissed.
- In May 2018, a complaint was filed against PIMCO in the Southern District of New York, alleging a violation of plaintiff's rights under the Americans with Disabilities Act by PIMCO's alleged failure to design, construct, maintain and operate a website to be fully accessible to and independently usable by plaintiff and other blind or visually-impaired people. In July 2018, the parties reached a settlement.
- In September 2019, a suit was filed against PIMCO, PIMCO Investments LLC and two PIMCO employees in California state court, alleging discrimination and unequal pay based on gender, race and disability status. The complaint also alleges fraud in connection with a flexible work request and other employment opportunities. PIMCO denies the allegations in the complaint and the suit is ongoing.
- In April 2018, PIMCO and PIMCO Investments LLC (as well as certain BlackRock entities) were named in a complaint filed in the U.S. Virgin Islands. The complaint alleges, that the defendants engaged in a coordinated effort designed to damage the business operations of Ocwen, the mortgage servicing company, which had certain business relationships with Altisource Asset Management Corporation, both companies in which the plaintiffs hold equity interests. An amended complaint was filed in August 2018, and PIMCO continues to defend the matter.
- In December 2016, PIMCO entered into a settlement with the Securities and Exchange Commission that relates to BOND, the U.S.-registered total return ETF. The settlement related to the disclosures regarding BOND's performance attribution during the first four months of its existence in 2012 and the valuation of 43 smaller-sized positions of non-agency mortgage-backed securities using third-party vendor prices, as well as PIMCO's compliance policies and procedures related to these matters.

PIMCO confirms that there have been no insurance claims under any of its insurance policies relating to the State's funds, and states that claims made on any of PIMCO's insurance policies are proprietary information and not made publicly available.

PIMCO states it has adequate procedures in place to undertake internal investigations of its employees, officers and directors. It has policies and procedures in place that are designed to mitigate conflicts of interest and require employees and service providers to report matters that may require further review. Matters raised would be reviewed by appropriate personnel in consultation with Legal and Compliance. PIMCO's policies prohibit retaliation for reporting or assisting with reviews of such conduct.

**Comments to Contract Terms:**

PIMCO has indicated it is willing to agree to the same MFN provision that they agreed to in a prior 2009 agreement. This would focus on a prospective MFN (i.e. forward looking) with certain carveouts. PIMCO would seek modification to narrow Connecticut's standard indemnification provision in that although PIMCO is not necessarily opposed to defending a claim in connection with an indemnifiable loss, it would not engage in litigation outside of that. This position appears consistent with the indemnification provision that was agreed to by PIMCO and Connecticut in the 2009 contract.

**Environmental, Social, Governance Analysis (“ESG”)(provided by Policy Unit)**

PIMCO scored a 1 in the Office of The Treasurer's internal ESG scoring system based on the firm's responses to Attachment M: Evolution and Implementation of Sustainable Practices. A score of 1 indicates the firm's response contains a detailed description of ESG philosophy and integration within their product. It also indicates the firm's response indicates the firm practices ongoing ESG assessment with an established framework, is a member of sustainability-oriented organizations, and has enhanced screening of firearms and/or higher-risk sectors.

Overall, PIMCO uses an institutionalized approach to considering ESG factors in its credit analysis, and its disclosure demonstrates a high degree of implementation for that work. PIMCO has a policy of excluding investments where the issuer generates more than 10% of its revenues from firearms. In addition, the firm uses proprietary ESG metrics which account for the sale and manufacture of civilian firearms

**Compliance Review (provided by Compliance)**

**I. Review of Required Legal and Policy Attachments**

PACIFIC INVESTMENT MANAGEMENT COMPANY (“PIMCO”) a California-based firm, completed all required legal and policy attachments. PIMCO disclosed no third party fees, campaign contributions, known conflicts, or gifts. Its disclosure of legal/regulatory proceedings is being reviewed by the Legal Unit.

**II. Workforce Diversity**

As of March 2020, PIMCO employed 1991, 288 more than the 1703 employed in December 2018. Fifty women and 63 minorities are Executive/Senior Level Officials and Managers. For the 3 year period 2018-2020, the firm promoted 114 women and 128

minorities within the ranks of professionals or managers.<sup>2</sup> Women and minorities are relatively well represented at all levels of the firm.

### **Commitment and Plans to Further Enhance Diversity – *this is PIMCO's info-just summarized***

Promoting diversity across all levels at PIMCO continues to be a priority. The firm is focused on attracting, developing and retaining top talent. To this end, the firm actively engages with multiple organizations to seek out and recruit diverse talent. The firm also partners with business groups to promote development of talent. Other measures being taken include, the continued engagement of senior leadership, and implementing process changes to mitigate bias in recruiting. Over the last 3 years, progress to date includes, PIMCO Europe Ltd. publishing the 2019 Gender Pay Gap report, and the firm also collaborating with two partners, Management Leadership for Tomorrow and Ascend Leadership, to actively address the adverse impacts of all forms of discrimination and bias occurring during the Covid-19 pandemic. PIMCO also expanded gender equality partnerships with Nomi Network, Women for Women International and Girls Who Invest, a non-profit focused on increasing the number of women in asset management.

#### Workforce Statistics

##### **For Executive/Senior Level Officials and Managers:**

- Women held 20% of these positions in both March 2020 (50 of 245) and December 2019 (47 of 230), up from 17% (37 of 213) in December 2018.
- Minorities held 25.7% (20% Asian, 2.9% Hispanic, 1.6% Black and 1.2% Two or More Races) (63 of 245) of these positions in March 2020; 25.7% (19% Asian, 3.5% Hispanic, 1.7% Black and 1.3% Two or More Races) (59 of 230) of these positions in December 2019, and 25.8% (19.2% Asian, 3.8% Hispanic, 1.9% Black and 0.9% Two or More Races) (55 of 213) in December 2018.

##### **At the Management Level overall:**

- Women held 27% of these positions in both March 2020 (181 of 676) and December 2019 (180 of 679), up from 25% (137 of 539) in December 2018.
- Minorities held 33% (23.4% Asian, 5.5% Hispanic, 2.5% Black and 1.6% Two or More Races) (223 of 676) of these positions in March 2020, 33.1% (23.1% Asian, 6% Hispanic, 2.5% Black and 1.5% Two or More Races) (225 of 679) of these positions in December 2019, up from 31.7% (22.4% Asian, 5.6% Hispanic, 2.4% Black and 1.3% Two or More Races) (171 of 539) of these positions in December 2018.

##### **At the Professional Level:**

- Women held 35% (400 of 1160) of these positions in March 2020, up from 34% (388 of 1138) in December 2019, and 32% (343 of 1063) in December 2018.
- Minorities held 48% (35.3% Asian, 8% Hispanic, 2.6% Black and 2.2% Two or More Races) (557 of 1160) of these positions in March 2020,

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<sup>2</sup> US data only.

48.2% (35.8% Asian, 8% Hispanic, 2.4% Black and 2.1% Two or More Races) (549 of 1138) of these positions in December 2019, up from 45.8% (34.1% Asian, 7.1% Hispanic, 2.6% Black and 2% Two or More Races) (487 of 1063) of these positions in December 2018.

#### **Firm-wide:**

- Women held 35% (700 of 1991) of these positions in March 2020, 35% (694 of 1980) in December 2019, up from 33% (565 of 1703) in December 2018.
- Minorities held 43.5% (30.6% Asian, 7.9% Hispanic, 3% Black, 2% Two or More Races and 0.1% American Indian or Alaskan Native) (867 of 1991) of these positions in March 2020, 43.5% (30.6% Asian, 8% Hispanic, 3% Black, 1.9% Two or More Races Two or More Races and 0.1% American Indian or Alaskan Native) (862 of 1980) of these positions in December 2019, up from 41.5% (29.3% Asian, 7.2% Hispanic, 3.1% Black, 1.8% Two or More Races Two or More Races and 0.1% American Indian or Alaskan Native) (706 of 1703) of these positions in December 2018.

### **III. Corporate Citizenship**

#### *Charitable Giving:*

PIMCO's community engagement is focused on addressing hunger and gender equality. "PIMCO Gives" invests in high performing non-profit partners to support innovative opportunities around the globe. Whether by leveraging employee match, deploying disaster assistance funds, or investing in local non-profits through its local grants program, the firm leverages its resources to contribute to society. Another initiative "PIMCO Acts" is also a channel for employees to invest their time, skills and expertise to drive meaningful impact by taking part in skills-based, hands-on, virtual, pro bono volunteering and nonprofit board placement. In 2019 the firm participated in the CT Challenge, in Westport CT. Through PIMCO's matching gift program, PIMCO matched 35 employee donations to multiple nonprofit 501c3 organizations operating in Connecticut.

#### *Internships/Scholarships:*

PIMCO hosts a few versions of internship programs customized for specific cohorts such as its Career Exploration program for sophomores and Girls Who Invest intern program. The majority of interns participate in a 10 week summer program. The firm does not currently provide direct scholarships, but has partnered with many diversity organizations (MLT, LEDA, RTC, GWI, TOIGO, etc.) where the firm's dollars are spent on providing educational programming and scholarship opportunities to fellows and scholars.

#### *Procurement:*

It appears PIMCO does not have a formal policy at this time. The firm reported that "being in the professional services industry, PIMCO's procurement activities are relatively limited." However, in 2019, it updated its Vendor Management Policy to foster enhanced due diligence; updates in the policy include new sections related to labor, inclusion & diversity and environment. The firm also requests that vendors confirm if they are a minority or women-owned business.



INVESTMENT GROUP

## State of Connecticut Retirement Plans and Trust Funds

Emerging Markets Debt  
Finalist Manager Search

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## Background

## Background

- On January 17, 2020, the State of Connecticut Retirement Plans and Trust Funds ("CRPTF") issued an Emerging Markets Debt RFP.
- As of March 31, 2020, at \$1.8 billion, the Emerging Markets Debt represented 5.7% of the overall portfolio.
- The CRPTF requested that all respondents submit the RFP by February 7, 2020.
  - In total, 36 firms responded to the proposal with different investment styles (24 blended, 4 hard currency, and 8 opportunistic).
  - Of the firms that responded, 7 (or 19%) are majority-employee owned. Only 2 (or 6%) are majority women- and/or minority-owned.
  - Approximately 36% of the firms provided detail regarding diversity among their workforce.
  - Of the firms that provided diversity detail, 31% (on average) of executive/senior level positions were held by women and/or minorities.
- Meketa worked with PFM to narrow the respondents to 9 semi-finalists managers, and subsequently held a conference call with each of these firms.
  - Of the 9 semi-finalists, 2 (or 33%) are fully employee owned, 1 (or 11%) are majority women- and/or minority-owned.
- Subsequent to the conference calls, Meketa and PFM further narrowed the respondents to 4 finalist managers. These managers, and the proposed structure for the asset class, are detailed on the following pages.

## Asset Class Structure Considerations

- In reviewing the various managers and potential allocation sizes, we wanted to build a composite that would perform well in different market environments.
- In addition to the qualitative assessment of the managers, we used modeling to simulate how different combinations of managers would perform.
- PFM reviewed multiple composites based on different objectives and constraints in the modeling.
- The following table shows the proposed structure for the asset class:

Proposed Portfolio	
Aberdeen Standard Investments	30%
Eaton Vance Management	4%
Payden & Rygel	35%
PIMCO	31%
Total	100%

Combined Multi-Manager Historical Risk-Adjusted Returns (gross of fees)  
Trailing 5-Year<sup>1</sup>

	Proposed Portfolio	Benchmark <sup>2</sup>
Common Period Performance:		
Common Period Performance (%):	5.4	4.0
Best 3 Months (%)	10.1	10.3
Worst 3 Months (%)	-7.0	-7.0
Risk Measures:		
Standard Deviation (%)	8.0	8.0
Tracking Error (%)	1.4	NA
Beta	0.97	1.00
Correlation to Benchmark	0.98	1.00
Downside Deviation (%)	4.3	4.1
Upside Capture (%)	102	NA
Downside Capture (%)	90	NA
Risk-Adjusted Performance:		
Jensen's Alpha (%)	1.4	NA
Sharpe Ratio	0.53	0.37
Information Ratio	0.94	NA

<sup>1</sup> Composite returns calculated monthly with stated composite weightings and monthly underlying fund returns

<sup>2</sup> Benchmark: 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

Combined Multi-Manager Portfolio Characteristics  
As of February 29, 2020

	Proposed Portfolio	Benchmark <sup>1</sup>
<b>Credit Quality Breakdown:</b>		
AAA	4	0
AA	3	5
A	14	19
BBB	30	41
BB & below	49	35
<b>Region Exposure:</b>		
Africa	18	11
Asia	24	23
Europe	25	25
Latin America	23	32
Middle East	9	9
Other	1	0
<b>Sector Exposure:</b>		
Sovereign (Local Currency)	46	50
Sovereign (Hard Currency)	34	40
Quasi-Sovereign	11	10
Corporate	8	0
Cash and Equivalents	1	0

<sup>1</sup> Benchmark: 50% JPM GBI-EM Global Div/50% JPM EMBI Global Div

**Combined Multi-Manager Trailing and Calendar Year Performance (gross of fees)<sup>1</sup>**  
**As of February 29, 2020**

	<b>Proposed Portfolio</b>	<b>Benchmark<sup>1</sup></b>
Trailing Period Returns (%):		
2020 YTD	-1.5	-2.1
1 Year	8.6	6.7
3 Years	5.8	4.9
5 Years	5.4	4.0

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<sup>1</sup> Composite returns calculated monthly with stated composite weightings and monthly underlying fund returns

## **Manager Candidates**

**Manager Overviews**  
**As of December 31, 2019**

	Aberdeen Standard	Eaton Vance	Payden & Rygel	PIMCO
Firm Location	Philadelphia, PA	Boston, MA	Los Angeles, CA	Newport Beach, CA
Firm Inception	1983	1979	1983	1971
Ownership Structure	Publicly Listed	Publicly Listed	California C-Corporation	Majority-owned subsidiary of Allianz with minority interests held by AAM's affiliates and current and former officers of PIMCO
% Minority/Female Ownership	NA	NA	>50	NA
% of Employee Ownership	<2	11	100	NA
% Minority/Female Management	41	20	26	NA
Strategy Name	Emerging Markets Debt Local and Hard Currency	Emerging Markets Debt Opportunities	Emerging Markets - USD / Local Currency Blend	PIMCO EM Blended Global Government Bond Strategy
Strategy Inception	May 2014	April 2013	July 2002	March 2010

## **Aberdeen Standard Investments**

## Aberdeen Standard Investments

### Organization

- Aberdeen Asset Management was founded in 1983 in Aberdeen, UK, and has expanded to include offices in Asia, Europe, and North America. In August 2017, Aberdeen Asset Management merged with Standard Life, another large publicly-traded financial services firm based in Edinburgh, Scotland, UK.
- The firm manages \$644.5 billion in assets under management across a mix of strategies. The emerging markets debt strategy was inceptioned in 1999 and has approximately \$2.7 billion in assets. The firm manages \$16.9 billion in various Emerging Markets Debt strategies. Emerging markets continue to be a focus area for Aberdeen as the firm manages a suite of emerging markets equity and debt products.

### Investment Team

- Co-portfolio managers Brett Diment and Edwin Gutierrez are the founders of the emerging markets debt strategy and have worked together in this capacity for 16 years. They joined Aberdeen when the firm acquired Deutsche Asset Management's Philadelphia and London fixed income businesses in 2005.
- Aberdeen's emerging markets debt team has grown steadily as assets have risen, and they continue to bolster their team of analysts. The team is organized by specialization, either sovereign or corporate, and they are primarily based in London and Singapore. Most team members have a dual role as portfolio managers and research analysts.

### Aberdeen Standard Investments (continued)

#### Investment Philosophy and Process

- Aberdeen seeks to exploit the mispricing opportunities offered by the inefficient emerging markets debt asset class by emphasizing a total return objective in a well-diversified portfolio. The approach is grounded in team-based decision making. It focuses on using comprehensive, bottom-up research to take high-conviction investment positions that express the firm's long term investment views while ignoring short term volatility.
- Aberdeen's three-step investment process begins with country-specific research that covers both qualitative (political risk, structural reform, monetary policy, and fiscal policy) and fundamental factors (economic strength, economic cycle, solvency, and liquidity).
- After reviewing the market, the team quantitatively analyzes all available instruments (US Dollar bonds, currencies, and domestic bonds) in individual countries to uncover relative value opportunities. Security selection decisions are based on forward-looking risk and return calculations, and an assessment of an issue's potential impact on key portfolio risk measures such as duration, correlation, and beta exposure.
- The team has a specific focus on fundamental credit research and building a library of research reports. Additionally, the team will hold a meaningful allocation to frontier markets and will invest in countries that are coming to the market to issue debt for the first time.
- Portfolio construction takes place with a view to duration, the correlation between assets, beta exposures, volatility, and tracking error. All team members are involved in the decision-making process, but Brett Diment has ultimate decision-making authority.

**Eaton Vance Management**

## Eaton Vance Management

### Organization

- Eaton Vance Management is based in Boston, Massachusetts, and is a wholly-owned subsidiary of Eaton Vance, a publicly-traded company. Voting shares are held in a trust, and voting trustees are officers of Eaton Vance or its affiliates. Non-voting shares are publicly traded on the New York Stock Exchange (NYSE:EV)
- Eaton Vance was formed by the 1979 merger of two Boston-based investment management firms: Eaton & Howard, Inc., founded in 1924, and Vance, Sanders & Company, organized in 1934. The firm now has \$213.4 billion in assets under management as of December 31, 2019. The Emerging Markets Debt Opportunities was launched in 2013 and has \$288 million in assets.

### Investment Team

- Portfolio managers Michael Cirami, Eric Stein, and John Baur have been managing the strategy since inception. Michael Cirami is the coordinating portfolio manager for the strategy and has final decision-making authority. Analysts are country specialists, and more than one team member is covering each country.
- The team has invested in emerging and frontier markets for over 20 years through the Global Macro Absolute Return strategy (a large flagship long/short credit fund that is around 80% EM Debt with an inception date of 1996). The same EMD portion of the team manages three dedicated long-only EMD strategies, including the Emerging Markets Debt Opportunities (EMDO) blended strategy (inception April 2013).

## Eaton Vance Management (continued)

### Investment Philosophy and Process

- The team believes (1) The universe is vast and differentiated, sourcing ideas from the broadest possible opportunity set. (2) Countries matter most: they concentrate their research on countries exhibiting structural change. (3) Mind your risk factors: they take active positions only in risk factor(s) for which they are adequately compensated and offset the rest. (4) Local trading adds measurable value: they embrace logistical challenges as opportunities to add operational alpha in clients' portfolios.
- The team relies on short term factors, intermediate-term fundamentals, and long-term structural trends to form views about specific countries. They see themselves as "country pickers" and believe that countries that have improving economic freedom are some of the best places to invest.
- The strategy is benchmark agnostic; benchmark weights do not play a role in determining position sizing or portfolio construction. It is usually more concentrated than the benchmark and comprises only the best ideas.
- Country analysis and access to markets are the first steps in the investment process. Eaton Vance has worked over the years to build traditional and non-traditional liquidity sources to correctly access markets. When conducting country analysis, the team's primary goal is to determine a country's direction of change over the intermediate to long term (1-5 years).
- Once the team has conducted the fundamental work on each country, they evaluate securities through risk and return framework. Then the team submits investment positions for potential inclusion in the portfolio.

**Eaton Vance Management (continued)****Investment Philosophy and Process (continued)**

- When constructing the portfolio, the team uses a tier system that allows countries with stable or improving country fundamentals, high return potential and, ample liquidity to have a higher weight within the portfolio.

**Payden & Rygel**

**Payden & Rygel****Organization**

- Payden & Rygel was founded in 1983 in Los Angeles, California, and it has expanded to have other offices around the world. The firm is 100% employee-owned with ownership distributed among 30 active members of senior management, and it is majority women-owned.
- Payden had \$119.1 billion in assets under management as of December 2019, of which \$12.7 billion are in Emerging Markets Debt strategies and \$3.5 billion are in this strategy.

**Investment Team**

- Portfolio manager Kristin Ceva is a Managing Director and Head of Global Fixed Income for the firm. Ms. Ceva joined Payden & Rygel in 1998 to expand the firm's emerging markets debt footprint. She is supported by four emerging markets strategists and two country analysts, a portfolio analyst, and a dedicated emerging markets trader. In addition, the emerging markets debt team draws on the expertise of the firm's 14-person global staff of analysts, economists, and traders.
- The team is very experienced, with an average of 15 years working in the investment industry and 9 years at Payden & Rygel.

**Payden & Rygel (continued)****Investment Philosophy and Process**

- The key tenet of Payden & Rygel's approach is that risk management should be the primary focus of active fixed income management. The team assesses sovereign, corporate, and local currency bonds together rather than separately. Given the significant variability across emerging market countries from an economic standpoint, the investment team feels that this holistic analysis improves their understanding of relative value.
- The team produces a medium-term quarterly global economic outlook. They probability-weight at least three macroeconomic scenarios, which serve as the starting point for a detailed forecasting process across interest rates, credit, and currency.
- The investment team identifies and scores on a one to five scale, the economic factors that they believe will be influential in determining country performance. The weights are enhanced by statistical analysis of the historical determinants of market movements and an analyst's qualitative judgment. The resulting score is an important contributor to the team's country return expectations.
- The team generates risk-adjusted return forecasts used in the asset allocation process. Sovereign credit investment decisions are based on fair value estimates and yield spread relationships within and between countries. Corporate credits are selected based on relative spread analysis, an assessment of comparable firms globally, and the team's country-specific economic outlook.
- The team has tight risk controls and aims to have a higher quality and lower volatility portfolio than peers. Corporate exposure is limited to 35%, local currency exposure is limited to 40%, and the team rarely invests in securities rated CCC or below. The team emphasizes liquidity and quality, and will not invest in distressed corporates, equities, structured products, or credit derivatives.

## **Pacific Investment Management Company (PIMCO)**

## Pacific Investment Management Company (PIMCO)

### Organization

- PIMCO is located in Newport Beach and is a majority-owned subsidiary of AAM, a subsidiary of Allianz SE, a financial services company based in Germany.
- The firm was founded in 1971 and now totals \$1.9 trillion in assets under management across strategies as of December 2019. The PIMCO Emerging Markets Blended Global Government Bond Strategy was inceptioned in 2006 and has close to \$1.2 billion in assets.

### Investment Team

- The strategy is managed in a team-based approach wherein each member of the EM team is expected to contribute to research, idea generation, portfolio construction, trading, and risk management
- This team is comprised of nearly 30 dedicated EM professionals whose backgrounds range from macroeconomic research to quantitative analysis to specialists in each of the areas in EM
- In addition to these dedicated EM portfolio managers, over 30 credit analysts (out of a total of over 65) cover quasi-sovereign and corporate issuers from emerging countries and significantly contribute to the formation of country views from the bottom-up.

## Pacific Investment Management Company (PIMCO) (continued)

### Investment Philosophy and Process

- PIMCO seeks to generate strong risk-adjusted returns independently of the market cycle. Their approach is based on three principles to bring discipline and consistency into their process. The first principle involves analyzing from every angle as they believe that no single approach holds the key to unlocking alpha. Secondly, they strive to avoid concentrations to protect against low probability/ high impact events. Lastly, the emerging markets team looks for ways to be different than the crowd.
- The investment process centers on the Emerging Markets Portfolio Committee (EMPC), comprised of nine senior members with Pramol Dhawan as chair. The EMPC meets several times per week and is in charge of building a model portfolio for all emerging markets strategies. PIMCO employs internal ratings that take into account country fundamentals, political landscape, reserve levels, debt profile, and contingency measures. The EMPC then blends PIMCO's top-down views, which are developed through various forums, into the emerging markets process.
- Views are determined on a team basis and formalized through discussion and debate within the Emerging Markets Portfolio Committee ("EMPC"), a forum that meets 2-3 times per week. Pramol Dhawan, Head of the Emerging Markets, is the chair of the EMPC and has final decision-making authority.

## **Historical Performance, Portfolio Characteristics, and Management Fees**

Manager Portfolio Characteristics  
 (As of 2/28/20)

	Aberdeen	Eaton Vance	Payden	PIMCO	Benchmark <sup>1</sup>
<b>Portfolio Profile:<sup>2</sup></b>					
Number of Issues	135	162	364	3593	1000
Number of Countries	47	47	51	83	74
Average Effective Duration	6.7	2.4	6.5	6.9	6.5
Yield to Maturity (%)	5.8	7.9	6.2	5.7	5.0
Average Credit Quality	BB+	BB-	BA1/BB+	BBB-	BBB-
<b>Credit Quality Breakdown: (%)</b>					
AAA	0	0	2	11	0
AA	5	0	2	2	5
A	11	0	16	16	19
BBB	32	12	33	27	41
BB & below	52	88	47	44	35
<b>Region Exposure: (%)</b>					
Africa <sup>3</sup>	22	18	13	20	11
Asia	16	18	23	33	23
Europe	18	36	22	35	25
Latin America	33	15	35	1	32
Middle East	12	1	6	10	9
Other	0	11	1	0	0
<b>Sector Exposure: (%)</b>					
Sovereign (Local Currency)	48	52	51	38	50
Sovereign (Hard Currency)	38	22	29	37	40
Quasi-Sovereign	9	0	8	18	10
Corporate	4	15	10	7	0
Cash and Equivalents	0	11	2	0	0

<sup>1</sup> Benchmark: 50% JPMorgan Emerging Market Bond Global Diversified Index / 50% JPMorgan Government Bond Index-Emerging Markets Global Diversified

<sup>2</sup> Portfolio Profile statistics are as of 12/31/2019. Credit Quality, Region and Sector Exposures are as of 2/28/2020

**Managers Historical Risk-Adjusted Returns (gross of fees)**  
**January 2017 to February 2020<sup>1</sup>**

	Aberdeen	Eaton Vance	Payden	PIMCO	Benchmark <sup>2</sup>
Common Period Performance:					
Common Period Performance (%)	6.3	8.8	6.7	7.3	5.8
Best 3 Months (%)	7.5	6.4	7.3	6.9	7.6
Worst 3 Months (%)	-8.7	-4.3	-8.7	-5.7	-7.0
Risk Measures:					
Standard Deviation (%)	8.2	5.2	8.5	6.4	7.0
Tracking Error (%)	1.7	3.5	1.9	1.1	NA
Beta	1.16	0.63	1.19	0.90	1.00
Correlation to Benchmark	0.99	0.87	0.98	0.99	NA
Downside Deviation (%)	5.1	3.6	4.6	3.7	3.9
Upside Capture (%)	112	86	118	98	NA
Downside Capture (%)	112	35	115	77	NA
Risk-Adjusted Performance:					
Jensen's Alpha (%)	-0.1	4.5	0.1	1.9	NA
Sharpe Ratio	0.57	1.39	0.60	0.88	0.60
Information Ratio	0.30	0.84	0.46	1.27	NA

<sup>1</sup> Common period is from January 2017 given the inception date of Payden Emerging Markets USD – 50/50 Blend Composite in December 2016.

<sup>2</sup> Benchmark: 50% JPMorgan Emerging Market Bond Global Diversified Index / 50% JPMorgan Government Bond Index-Emerging Markets Global Diversified

Managers Historical Risk-Adjusted Returns (gross of fees)  
 Trailing 5-Year

	Aberdeen	Eaton Vance	Payden <sup>1</sup>	PIMCO	Benchmark <sup>2</sup>
Common Period Performance:					
Common Period Performance (%)	4.6	6.9	NA	5.7	4.0
Best 3 Months (%)	12.5	8.9	NA	9.4	10.3
Worst 3 Months (%)	-8.9	-6.4	NA	-6.1	-7.0
Risk Measures:					
Standard Deviation (%)	9.6	6.2	NA	7.4	8.0
Tracking Error (%)	2.1	4.0	NA	1.5	NA
Beta	1.17	0.65	NA	0.89	1.00
Correlation to Benchmark	0.98	0.87	NA	0.98	NA
Downside Deviation (%)	4.9	3.5	NA	3.9	4.1
Upside Capture (%)	115	81	NA	97	NA
Downside Capture (%)	112	46	NA	80	NA
Risk-Adjusted Performance:					
Jensen's Alpha (%)	0.1	3.9	NA	2.0	NA
Sharpe Ratio	0.36	0.94	NA	0.62	0.37
Information Ratio	0.26	0.71	NA	1.09	NA

<sup>1</sup> Excluded from trailing 5-year statistics given the inception date of Payden Emerging Markets USD – 50/50 Blend Composite in December 2016.

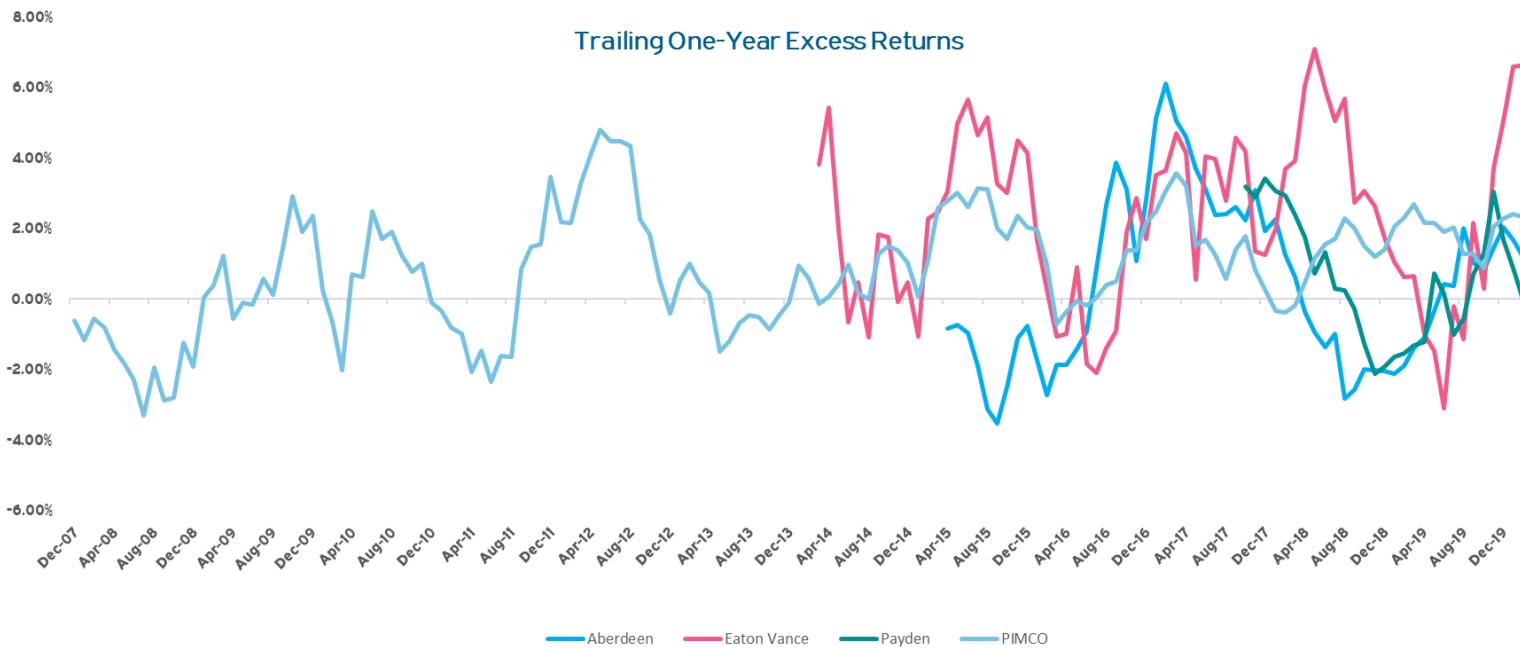
<sup>2</sup> Benchmark: 50% JPMorgan Emerging Market Bond Global Diversified Index / 50% JPMorgan Government Bond Index-Emerging Markets Global Diversified

**Trailing and Calendar Year Performance (gross of fees)**  
**As of February 28, 2020**

	Aberdeen	Eaton Vance	Payden	PIMCO	Benchmark <sup>1</sup>
Trailing Period Returns (%):					
1 Year	7.9	13.3	7.6	9.0	6.7
3 Years	5.0	8.4	5.5	6.3	4.9
5 Years	4.6	6.9	NA	5.7	4.0
7 Years	NA	NA	NA	3.4	2.1
10 Years	NA	NA	NA	5.7	4.5
Calendar Year Returns (%):					
2019	16.3	19.3	17.3	16.6	14.3
2018	-7.2	-3.4	-7.3	-3.8	-5.2
2017	14.7	14.0	15.6	13.0	12.8
2016	13.0	11.8	NA	12.3	10.2
2015	-7.9	-3.0	NA	-5.1	-7.1
2014	NA	1.2	NA	1.7	0.7
2013	NA	NA	NA	-7.2	-7.1
2012	NA	NA	NA	16.8	17.2
2011	NA	NA	NA	6.3	2.8
2010	NA	NA	NA	13.9	14.0
2009	NA	NA	NA	28.3	26.0

<sup>1</sup> Benchmark: 50% JPMorgan Emerging Market Bond Global Diversified Index / 50% JPMorgan Government Bond Index-Emerging Markets Global Diversified

## Rolling One-Year Period Excess Returns vs. Benchmark<sup>1</sup> As of February 28, 2020



As of 2/28/2020	Total Periods	Periods Outperformed	Percentage (%)	Average Excess Return (%)	Median Excess Return (%)	Max (%)	Min (%)	Range (%)
Aberdeen	59	30	51	0.4	0.4	6.1	-3.5	9.6
Eaton Vance	72	57	79	2.3	2.4	7.1	-3.1	10.2
Payden	28	18	64	0.6	0.7	3.4	-2.1	5.5
PIMCO	147	102	69	0.8	1.0	4.8	-3.3	8.1

<sup>1</sup> Benchmark: 50% JPMorgan Emerging Market Bond Global Diversified Index / 50% JPMorgan Government Bond Index-Emerging Markets Global Diversified

**Monthly Excess Return Correlation**  
**Longest Common Period<sup>1</sup> as of February 28, 2020**

	Aberdeen	Eaton Vance	Payden	PIMCO
Aberdeen		-0.25	0.56	-0.17
Eaton Vance	-0.25		-0.25	0.55
Payden	0.56	-0.25		-0.17
PIMCO	-0.17	0.55	-0.17	

<sup>1</sup> Common period is from January 2017 given the inception date of Payden Emerging Markets USD – 50/50 Blend Composite in December 2016.

## Management Fees

Manager	Fee Schedule	Mandate Size (\$ mm)	Estimated Effective Fee	Peer Ranking <sup>1</sup>
Aberdeen	Mandate < \$200mm, 0.45% on all assets; Mandate \$200-\$600mm, 0.40% on the first \$300mm and 0.375% on the next \$300mm; Mandate > \$600mm, 0.40% on the first \$300mm and 0.35% on the next \$300mm, 0.27% thereafter	540	0.39%	19
Eaton Vance	0.30% flat fee. Fee proposal represents a significant discount for early institutional separate account clients	72	0.30%	3
Payden	0.36% on the first \$250mm, 0.31% thereafter	630	0.33%	14
PIMCO	0.475% on the first \$100mm, 0.40% thereafter	558	0.41%	28

<sup>1</sup> The peer group is the eVestment Global Emerging Mkts Fixed Income - Blended Currency universe.

## Glossary

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

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

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

**Tracking Error:** This statistic measures the standard deviation of excess returns relative to a benchmark. Tracking error is calculated by multiplying the standard deviation of the monthly excess returns of a portfolio relative to a benchmark by the square root of twelve in order to annualize. The higher the tracking error, the greater the volatility of excess returns relative to a benchmark.

**Return on Assets:** A commonly used measurement showing how effective management is in using its assets to generate earnings. This ratio is calculated as net income divided by total assets.

**Return on Equity:** A commonly used measure of the profitability of the business in relation to equity. This ratio shows how well a company uses investments to generate earnings growth. ROE is calculated by dividing net income by shareholder's equity.

**Return on Invested Capital:** This performance ratio determines the amount of return a company is making above its average cost for debt and equity. ROIC will measure how much cash a company gets back for each dollar it invests in its business.

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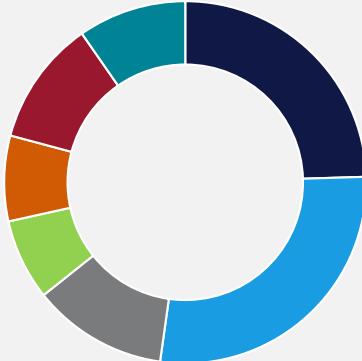
June 2020

# Emerging Market Debt 50% Hard Currency / 50% Local Currency

Connecticut Retirement Plans and Trust Funds

# About Aberdeen Standard Investments

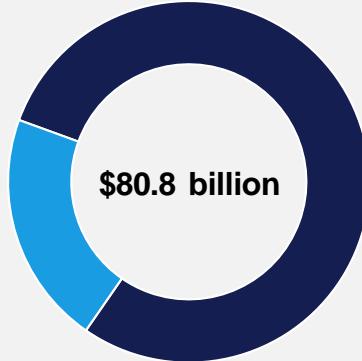
**Total AuM US\$644.5bn**



- Equities, 25%
- Fixed Income, 28%
- Multi-Asset, 12%
- Private Markets & Alternatives, 7%
- Real Estate, 8%
- Quantitative, 11%
- Cash/Liquidity, 10%

- Active asset manager globally for institutional and wholesale clients
- Geographically diverse, over 40 locations globally
- Offering a comprehensive range of developed and emerging market equities, fixed income, multi-asset, real estate, quantitative, private markets and alternatives solutions
- Long-established track record of making ESG considerations core to our investment approach
- ESG fully embedded in all our investment processes and client offerings

**Combined emerging markets capabilities\***



- Equity Emerging Markets & APAC  
\$63.9 billion
- Fixed Income Emerging Markets  
\$16.9 billion

Source: Aberdeen Standard Investments, 31 December 2019  
Figures may appear not to add due to rounding. For illustrative purposes only

# Why ASI for Emerging Market Debt – Competitive advantages



## Experience

- Deep and experienced Emerging Markets Debt team comprised of over 50 individuals responsible for \$16.9 billion in assets



## Continuity

- Senior members of the team have been with the firm an average of 14 years and have an average of 21 years of industry experience



## Proprietary Research

- EMD team based locally in 8 markets which facilitates efficient coverage of our universe resulting in over 50 country visits and 700 company meetings per year



## Focus on Smaller/ Frontier Markets

- These markets are under researched and often mispriced
- Deep team affords us the opportunity to properly assess risk/return prospects in these markets which have been a considerable source of alpha for us



## Risk Management

- Utilizing a comprehensive and proprietary platform, Quantum, risk management is fully integrated into the investment and portfolio construction process

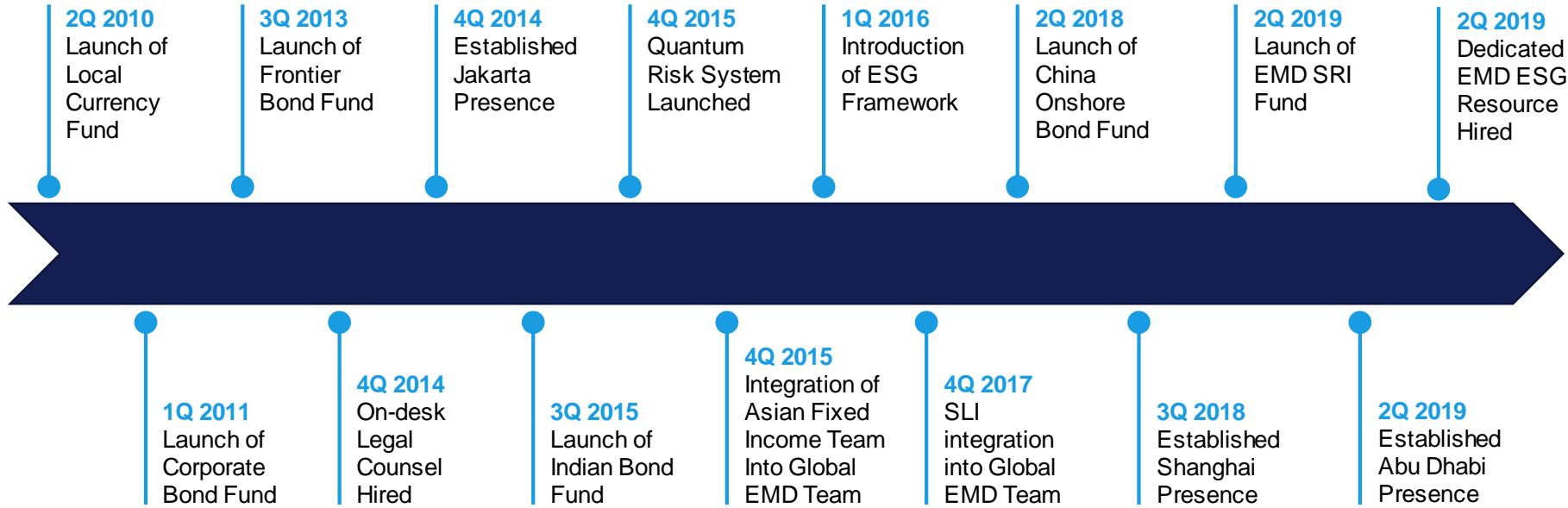


## ESG

- ESG analysis is fully integrated into our research process and is tailored specifically for emerging markets

Source: Aberdeen Standard Investments, 31 December 2019

# Constant enhancements to our EMD platform ensures we remain ahead of the curve



Source: Aberdeen Standard Investments, 31 December 2019

# Our strategies: spanning the entire EMD universe and risk spectrum

<b>EMD Core (Hard Currency Sovereign)</b> Invests primarily in hard currency sovereign and quasi sovereign bonds.	\$1,854m
<b>EMD Corporate</b> Invests primarily in hard currency corporate bonds.	\$2,851m
<b>Asian Credit</b> Invests primarily in Asian hard currency corporate bonds.	\$1,567m
<b>EMD Total Return</b> Invests in hard and local currency sovereign and quasi sovereign bonds and currencies from EM and DM countries.	\$157m
<b>EMD Plus (Blended)</b> Invests in hard and local currency sovereign, quasi sovereign and corporate bonds and currencies.	\$5,298m
<b>Asian Diversified</b> Invests in hard and local currency sovereign, quasi-sovereign and corporate bonds and currencies from Asian countries.	\$170m
<b>EMD Frontier</b> Invests in hard and local currency sovereign, quasi-sovereign and corporate bonds and currencies in frontier markets	\$698m
<b>EMD Local Currency Sovereign</b> Invests primarily in local currency sovereign bonds and currencies.	\$2,927m
<b>Asian Local Currency</b> Invests primarily in Asian local currency sovereign bonds and currencies.	\$667m
<b>Single Country (Brazil, India, China, Thailand and Indonesia)</b> Invest primarily in local currency sovereign, quasi-sovereign and corporate bonds.	\$678m

**Total AuM: \$16.9bn\***

We also offer tailored solutions:

- ✓ **Buy and hold**
- ✓ **Fixed maturity**
- ✓ **Short duration**
- ✓ **ESG screens**
- ✓ **Passive enhanced**

Source: Aberdeen Standard Investments, 31 December 2019

\* Dedicated 3rd party EMD mandates only. Excludes assets managed on behalf of Multi-Asset and GARS

# Investment philosophy

## When investing in Emerging Market Debt, we base our approach on the following philosophy:

- **Successful investment in EMD requires intensive fundamental research**

Comprehensive proprietary research forms the foundation of our investment process, allowing us to gain thorough understanding of the inherent risks associated with the countries and companies in which we invest and take positions with a high degree of conviction.

- **Having an experienced, well-resourced team with diverse backgrounds enhances idea generation**

Our integrated team structure, with dedicated sovereign and corporate specialists sitting together, gives us a better overview of the asset class and enables us to identify where the best value lies at any given time. We believe in the importance of vigorous debate, encourage original thought in our country research and have team members focused on specific strategies to help frame discussions on portfolio construction.

- **On-the-ground research and frequent country trips are important to understand the perception of risk between local and foreign investors**

Understanding what local market participants are thinking can help identify potential investment opportunities arising from these differences. Our market leading presence in Asia brings an important local perspective.

- **Significant alpha can be derived from smaller issuers that are relatively under-researched and can often be mispriced**

We often find that the best opportunities lie in the less well researched areas of the universe across both sovereigns and corporates. We are long term investors in frontier markets and devote significant resources to performing the necessary due diligence as we believe these issuers can potentially provide a considerable source of risk-adjusted alpha should mandates permit.

- **ESG integration creates long-term investment value**

We believe that integrating ESG into our investment decision-making is essential to generating the best long-term outcomes for our clients. ESG analysis uncovers valuable information on the risks and opportunities an issuer may be facing today and in the future and is conducted for every issuer we own, whether they are sovereign, quasi-sovereign or corporate.

- **Constructing well-diversified portfolios can help to minimize risk over the long term**

Our well-resourced team, means we can research opportunities across the widest possible universe for our clients' benefit including, but not limited to hard and local currency sovereigns, quasi-sovereigns, corporates and currencies and then building client portfolios from the bottom up in a risk controlled manner. This helps to minimize volatility over time and increases our potential to add value. We also use our proprietary risk analysis tool – Quantum – to look at macroeconomic risk factors and ensure our portfolios are not overly sensitive to any particular themes.

# Combined emerging market debt and equity expertise

## EM Assets

**\$80.8bn**

**\$63.9bn in EM equity**

**\$16.9bn in EMD**

## History of EM investing

**30 years – EM equity**

**25 years – EM debt**

**18 years – EM corporates**

## Research

**80 Countries**

**1,000 Companies**

## Resources

**109 Investment professionals**

Source: Aberdeen Standard Investments, 31 December 2019

**Exceptional depth and breadth**

# The investment team



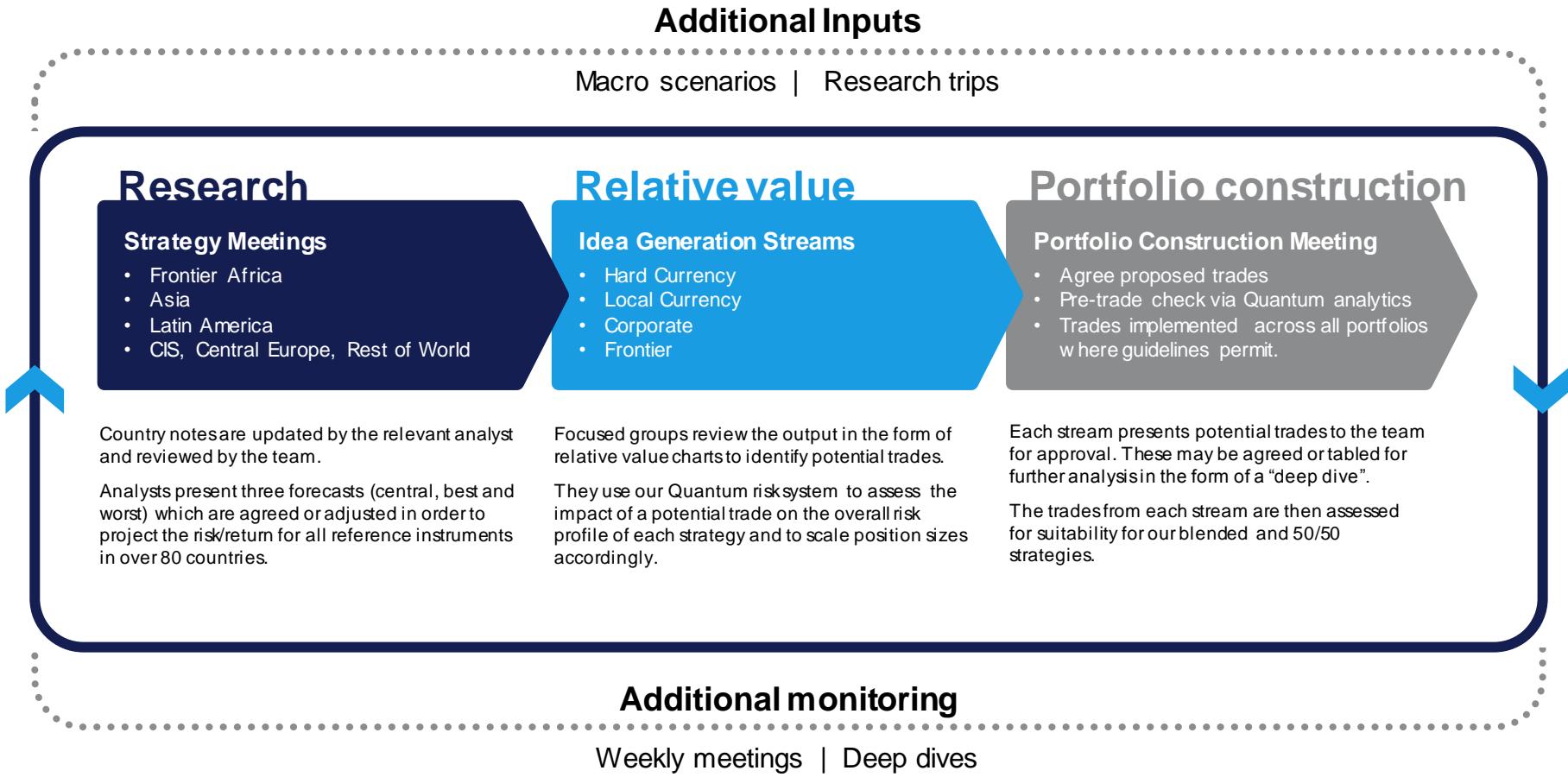
Source: Aberdeen Standard Investments, 30 April 2020

(-) denotes years with firm and industry experience

\* denotes members of the Fixed Income ESG network

Experienced, stable team with a broad range of specialist skills

# Investment process overview



**Continuous cycle every six weeks**

# Research visits



Over 50  
country visits  
every year



Over 700  
company  
meetings  
every year



80  
countries  
500  
companies  
covered in depth

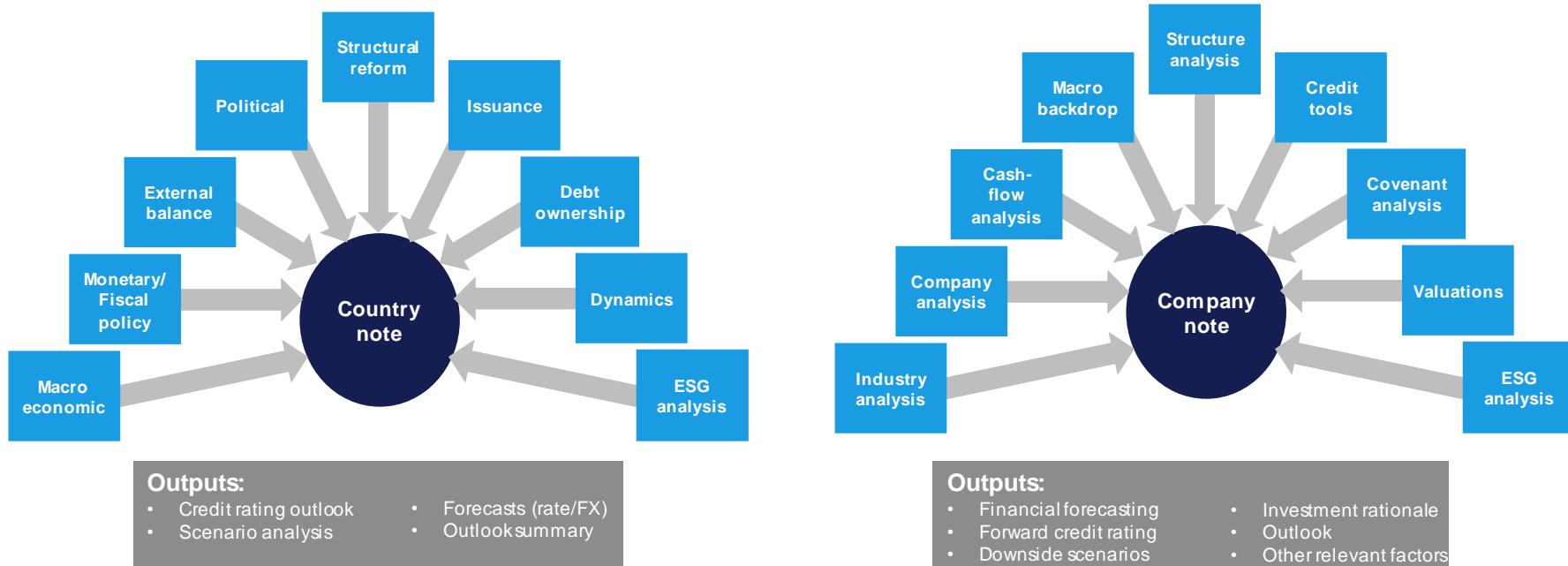
Year	Month	Country	Visits
2014			51
2015			55
2016			53
2017			68
2018	Jan	China (2), Brazil, Argentina, Indonesia, Thailand, Ukraine	7
	Feb	Indonesia, India, Malaysia, Thailand (2), Egypt, Nigeria, Turkey	8
	Mar	South Africa, Lebanon, Nigeria, Romania, Poland, Czech Republic	6
	Apr	Philippines, South Korea, Indonesia	3
	May	Sri Lanka	1
	Jun	Ukraine, Mexico, Panama, India, Hong Kong	5
	Jul	Venezuela, Ecuador, Malaysia, Indonesia	4
	Aug	Mongolia	1
	Sep	Zambia, Kenya, Turkey, Poland, Czech Republic, India	6
	Oct	Argentina, Colombia, China, Pakistan, Lebanon, Philippines, Hong Kong	7
	Nov	China, Malaysia, Argentina, Brazil (2)	5
	Dec	Ghana, Gabon, Cameroon, Ecuador, Colombia	5
<b>Total</b>			<b>58</b>
2019	Jan	Ukraine, China (2), Sri Lanka	4
	Feb	Qatar, Oman, UAE, Ivory Coast, Senegal	5
	Mar	Indonesia, Malaysia, South Korea, India, China, Mexico, Costa Rica, South Africa, Zambia, Saudi Arabia, Bahrain, Kuwait, Qatar, Oman, Lebanon, UAE, Tunisia, Egypt	18
	Apr	Indonesia, Turkey, Thailand, China, Brazil, Argentina	6
	May	Indonesia, Thailand, Turkey, Hungary, Philippines	5
	Jun	Guatemala, Mexico, Hong Kong	3
	Jul	China	1
	Aug	Malaysia, Philippines, Mongolia, Thailand, Georgia	5
	Sep	Malaysia, China, Nigeria, South Africa	4
	Oct	China, Brazil, Mexico, Kenya, Mozambique, Angola, Poland, Romania, Czech Republic, Hungary, Ukraine	11
	Nov	Argentina, Egypt, Ghana, Nigeria, Ecuador, India, China	7
	Dec	Saudi Arabia	1
<b>Total</b>			<b>70</b>

Source: Aberdeen Standard Investments, 31 December 2019



# Research: sovereign and credit

## Independent, forward-looking fundamental analysis



### Why the Country and Company notes are important:

- Research held centrally, shared globally
- Consistent, rigorous process to establish a view for rates, credit and FX – quantifies likely market ranges
- Regular cycle; nothing goes stale – enables quick reaction to events
- Team cannot own a credit/sovereign issuer without a research note

Source: Aberdeen Standard Investments

Notes: ESG (environmental, social and governance); FX (foreign exchange)

**A research note is created for every issuer we own**

# Research: ESGP analysis

## ESGP scores are normalized on a scale from 0 to 100

- Our overall ESGP score is calculated as a weighted average of each pillar's score
- Z-scores calculated for each country, signalling where each country lies relative to the average of all countries on that particular indicator. Z-scores are then averaged within each of the four dimensions, resulting in a score for each pillar
- We believe that the Political and Governance pillars have the greatest impact on a country's ability to sustain its growth and repay its debt
- Political and Governance factors can be key catalysts or impediments to the improvement of socio-economic and environmental factors

Country	Environmental score	Social score	Governance score	Political score	ESGP score	Direction of Travel
Czech Republic	78	97	96	89	100	NEUTRAL
Lithuania	89	86	100	87	97	POSITIVE
Poland	74	91	86	83	92	NEUTRAL
Uruguay	100	74	82	100	92	NEUTRAL
Chile	85	75	93	87	90	NEUTRAL
Hungary	87	86	78	73	86	NEGATIVE
Costa Rica	97	69	79	86	84	NEUTRAL
Romania	90	78	78	71	82	NEUTRAL
Georgia	71	76	90	62	80	POSITIVE
Malaysia	77	77	79	54	75	NEUTRAL
Serbia	55	86	66	57	73	NEUTRAL
Oman	34	82	66	69	73	NEUTRAL
Argentina	86	71	62	68	73	POSITIVE
Peru	82	64	69	51	67	POSITIVE
Sri Lanka	88	73	59	43	65	POSITIVE
Kazakhstan	44	83	61	42	65	NEUTRAL
Mexico	85	70	69	34	64	NEUTRAL
Brazil	92	59	65	50	64	POSITIVE
Indonesia	83	58	65	45	61	POSITIVE
Colombia	94	59	65	39	61	POSITIVE
Ukraine	50	81	56	35	61	POSITIVE
Russia	62	78	58	32	61	NEUTRAL
Ecuador	82	66	47	50	60	POSITIVE
Turkey	79	70	64	25	59	NEGATIVE
Morocco	69	60	58	46	59	POSITIVE
South Africa	26	44	78	59	58	NEUTRAL
Ghana	59	37	64	63	55	POSITIVE
China	41	76	52	28	55	POSITIVE*
India	46	52	65	41	53	POSITIVE
Saudi Arabia	0	79	47	39	53	NEUTRAL
Lebanon	69	73	37	30	52	NEGATIVE
Senegal	47	34	57	56	49	POSITIVE
Bolivia	75	51	35	44	48	NEGATIVE
Uzbekistan	32	73	31	26	45	POSITIVE
Egypt	37	65	40	21	44	NEUTRAL
Zambia	61	20	45	45	37	NEGATIVE
Venezuela	64	58	0	21	31	NEGATIVE
Mozambique	39	5	40	31	23	NEGATIVE
Angola	32	18	25	31	22	POSITIVE
Cameroon	15	20	27	24	20	NEGATIVE
Nigeria	26	15	34	18	19	NEUTRAL

Source: Aberdeen Standard Investments, July 2019

\* Subject to Central ESG Team sign-off

# Relative value

Identifies investments with attractive risk/return characteristics:

Example: Indonesia		Current	Central scenario	Risk scenarios		Return expectations (%)	
				Best case	Worst case	Risk adjusted	Draw-down
<b>US Dollar Sovereign bond*</b>	<b>Spread (bps)</b>	169	150	120	205	1.97	-1.87
<b>Quasi Sovereign bond*</b>	<b>Spread (bps)</b>	216	200	170	245	1.99	-2.01
<b>Indonesian Rupiah vs USD</b>	<b>Spot</b>	14,850	14,600	14,300	15,900	5.90	-1.50
<b>Domestic bond*</b>	<b>Yield (%)</b>	8.50	8.00	7.40	9.20	7.15	-7.50

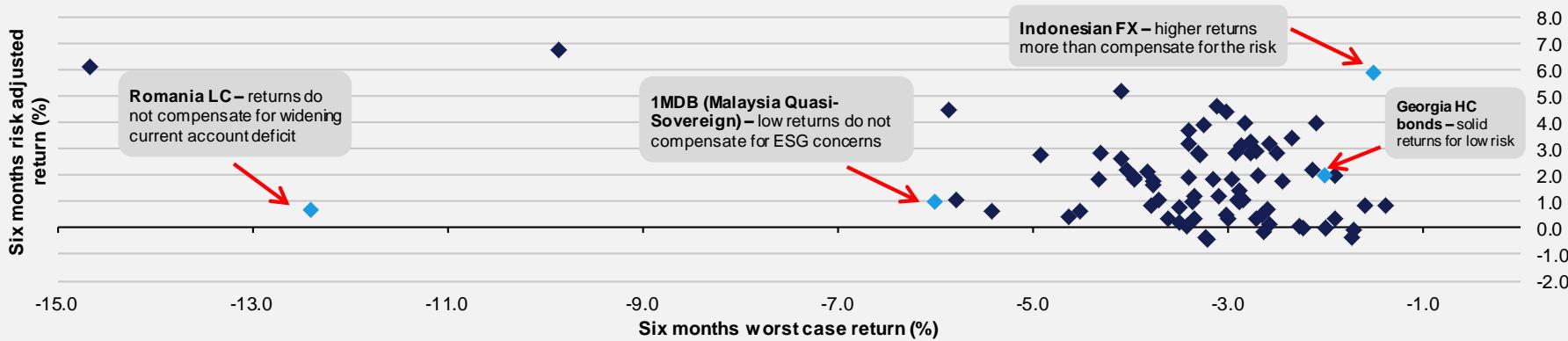
\* Ten year bonds. Domestic bond returns are shown on an unhedged basis

Note: bps (basis points)

Risk adjusted: % weighted return using 60% for base case, 20% for best case and 20% for worst case plus six months of accrued interest

Drawdown: six months worst case return plus six months of accrued interest

We compare risk and return forecasts to identify the best risk-adjusted opportunities



Source: Aberdeen Standard Investments, September 2018

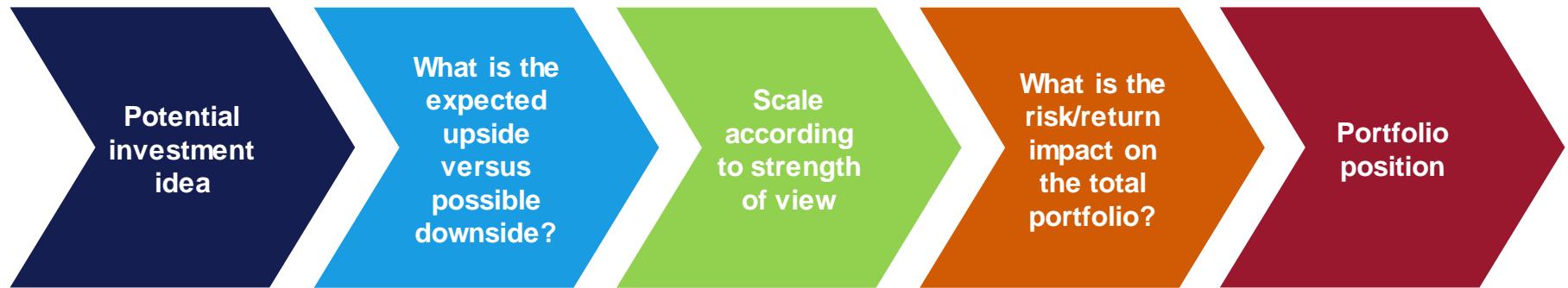
\* Ten year bonds

Hypothetical bonds are used for illustrative purposes only. These hypothetical bonds are meant to illustrate if the country fundamentals warrant us investing in hard currency, local currency and/or corporate bonds. Hypothetical bonds are provided for informational purposes only and should not be deemed as a recommendation to buy or sell. Projections are offered as opinion and are not reflective of potential performance. Projections are not guaranteed and actual events or results may differ materially. Actual market conditions may have a different impact on the portfolio. No assumptions regarding future performance should be made. For illustrative purposes only

Seeking well compensated risks

# Portfolio construction

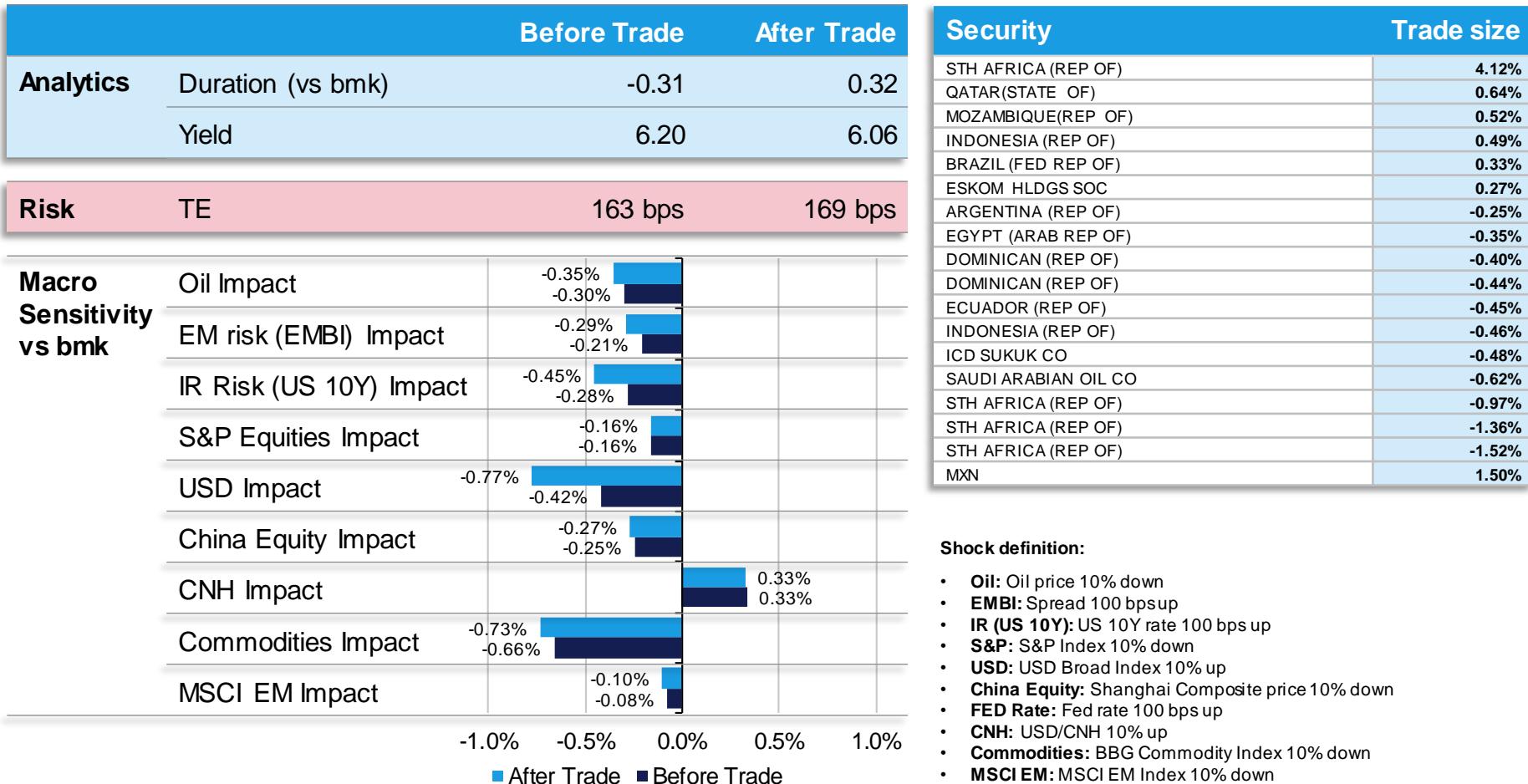
Investments sized in accordance with valuation targets:



Building diversified portfolios

# Portfolio construction

## Pre-trade analysis



### Security

Security	Trade size
STH AFRICA (REP OF)	4.12%
QATAR(STATE OF)	0.64%
MOZAMBIQUE(REP OF)	0.52%
INDONESIA (REP OF)	0.49%
BRAZIL (FED REP OF)	0.33%
ESKOM HLDGS SOC	0.27%
ARGENTINA (REP OF)	-0.25%
EGYPT (ARAB REP OF)	-0.35%
DOMINICAN (REP OF)	-0.40%
DOMINICAN (REP OF)	-0.44%
ECUADOR (REP OF)	-0.45%
INDONESIA (REP OF)	-0.46%
ICD SUKUK CO	-0.48%
SAUDI ARABIAN OIL CO	-0.62%
STH AFRICA (REP OF)	-0.97%
STH AFRICA (REP OF)	-1.36%
STH AFRICA (REP OF)	-1.52%
MXN	1.50%

### Shock definition:

- **Oil:** Oil price 10% down
- **EMBI:** Spread 100 bps up
- **IR (US 10Y):** US 10Y rate 100 bps up
- **S&P:** S&P Index 10% down
- **USD:** USD Broad Index 10% up
- **China Equity:** Shanghai Composite price 10% down
- **FED Rate:** Fed rate 100 bps up
- **CNH:** USD/CNH 10% up
- **Commodities:** BBG Commodity Index 10% down
- **MSCI EM:** MSCI EM Index 10% down

Source: Aberdeen Standard Investments (Quantum), 23 December 2019

Representative account is a US commingled vehicle used for illustrative purposes only. The above is supplemental information and supplements the composite presentations (as provided in the GIPS disclosures) which can be found in the appendix. For illustrative purposes. Macro beta analysis based on 15 years of historical data with a six month half-life.

# Portfolio construction

## Employing risk effectively

### Investments with attractive risk/return characteristics:

Hard currency  
sovereigns

Corporates

Local currency  
sovereigns

Currencies

#### Risk factors:

High yielding issuers/sensitivity to commodity prices

Duration

Correlation, Beta exposures

Volatility

Tracking error

#### Portfolio (sample guidelines)\*

**Country:** Maximum exposure per country: 20%, Smaller countries: 2% (relative to bmk)

**Currency:** Total exposure: 75%, Individual currency: +7% (relative to bmk)

**Corporate:** Total exposure: 20%, Individual issuer: 1%

**Diversification:** Minimum 25 countries

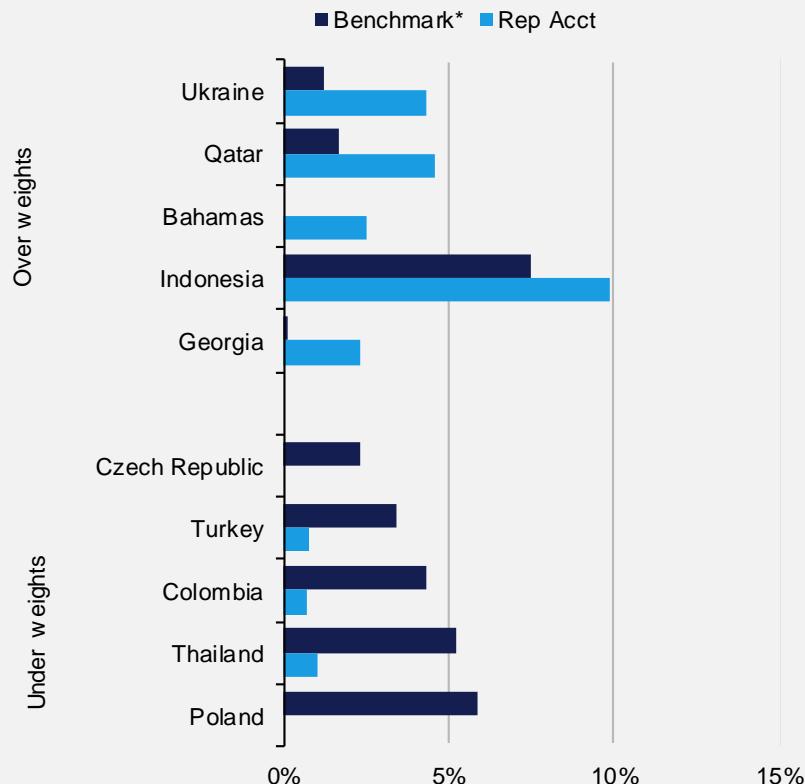
\* Sample guidelines are constructed and presented for discussion only. The guidelines are not meant for actual investment guidelines and are intended to illustrate topics generally covered in Investment guidelines. For illustrative purposes only.

**Building diversified portfolios**

# Key characteristics

## Emerging Markets Debt 50% Hard Currency 50% Local Currency representative account

### Country allocation – Top 5 over/under weights (%)



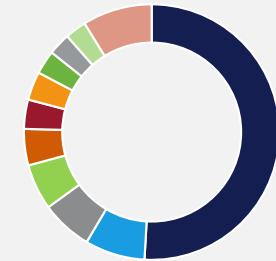
### Sector

- Hard Currency Sovereign/Quasis, 47%
- Hard Currency Corporates, 3%
- Local Currency Sovereign/Quasis, 48%
- Cash, 3%



### Currency

- US Dollars, 50.9%
- Russian Rouble, 7.6%
- Indonesian Rupiah, 6.5%
- Mexican Peso, 5.8%
- Czech Koruna, 4.6%
- Thai Baht, 3.7%
- Malaysian Ringgit, 3.6%
- Brazilian Real, 3.0%
- South African Rand, 2.8%
- Colombian Peso, 2.7%
- Other, 8.8%



Source: Aberdeen Standard Investments, JP Morgan, 31 March 2020 (unaudited data)

\* Benchmark/Reference Index: 50% JPM EMBI Global Diversified, 50% JPM GBI-EM Global Diversified

Representative account is a US commingled vehicle used for illustrative purposes only. Your portfolio may not have the same country exposure. Country exposure is subject to change. Some of the countries included in the portfolio are not part of every client portfolio. Diversification does not ensure a profit or protect against a loss in a declining market. The above is supplemental information and supplements the composite presentations (as provided in the GIPS disclosures) which can be found in appendix. Figures may appear not to add due to rounding. For illustrative purposes only

## What is Quantum?

A proprietary global risk platform incorporating internal portfolio analysis and modelling tools such as:

- Risk analytics e.g. decomposition of tracking error and VAR
- Macro sensitivity analysis demonstrating portfolio vulnerability to exogenous shocks
- Simulation of maximum drawdown via stress testing
- Portfolio modelling for bespoke client solutions, including correlation analysis and risk budgeting

Source: Aberdeen Standard Investments

# EMD – 50% Hard Currency / 50% Local Currency composite performance

## To 31 May 2020

	YTD 2020	2019	2018	2017	2016	2015	2014 (May)	Since inception
<b>Emerging Markets Debt – 50% Hard Currency / 50% Local Currency Composite<sup>1</sup></b>	<b>-9.25</b>	<b>16.30</b>	<b>-7.21</b>	<b>14.68</b>	<b>12.95</b>	<b>-7.91</b>	<b>-5.22</b>	<b>1.69</b>
50% JPM EMBI Global Diversified and 50% JPM GBI EM Global Diversified	-5.94	14.01	-5.33	12.26	10.18	-7.12	-4.01	1.87
<b>Difference</b>	<b>-3.31</b>	<b>2.29</b>	<b>-1.88</b>	<b>2.42</b>	<b>2.77</b>	<b>-0.79</b>	<b>-1.21</b>	<b>-0.18</b>

### Emerging Markets Debt – 50% Hard Currency / 50% Local Currency Composite<sup>1</sup>



Source: Aberdeen Standard Investments, USD, preliminary data as of 31 May 2020. **Past performance is not a guide to future results**

1. Inception: 1 May 2014. Benchmark: 50% JPM EMBI Global Diversified and 50% JPM GBI EM Global Diversified

Performance presented is preliminary performance and is unaudited & subject to change. Preliminary performance should not be used to make an investment decision. Performance is gross of fees and does not reflect advisory fees, had such fees been deducted, returns would have been lower. Net performance can be found in appendix. The above is supplemental information and supplements the composite presentations (as provided in the GIPS disclosures) which can be found in appendix. Indexes are unmanaged and have been provided for comparison purposes only. No fees or expenses are reflected. Individuals cannot invest directly in an index. For illustrative purposes only

# Conclusion

- Established, well-resourced, stable team with deep experience
- Recognized emerging markets specialist in both debt and equity
- Long established network across emerging market countries
- Exploiting opportunities through extensive research
- Size ensures investment flexibility

# Appendices

# Research: Country note



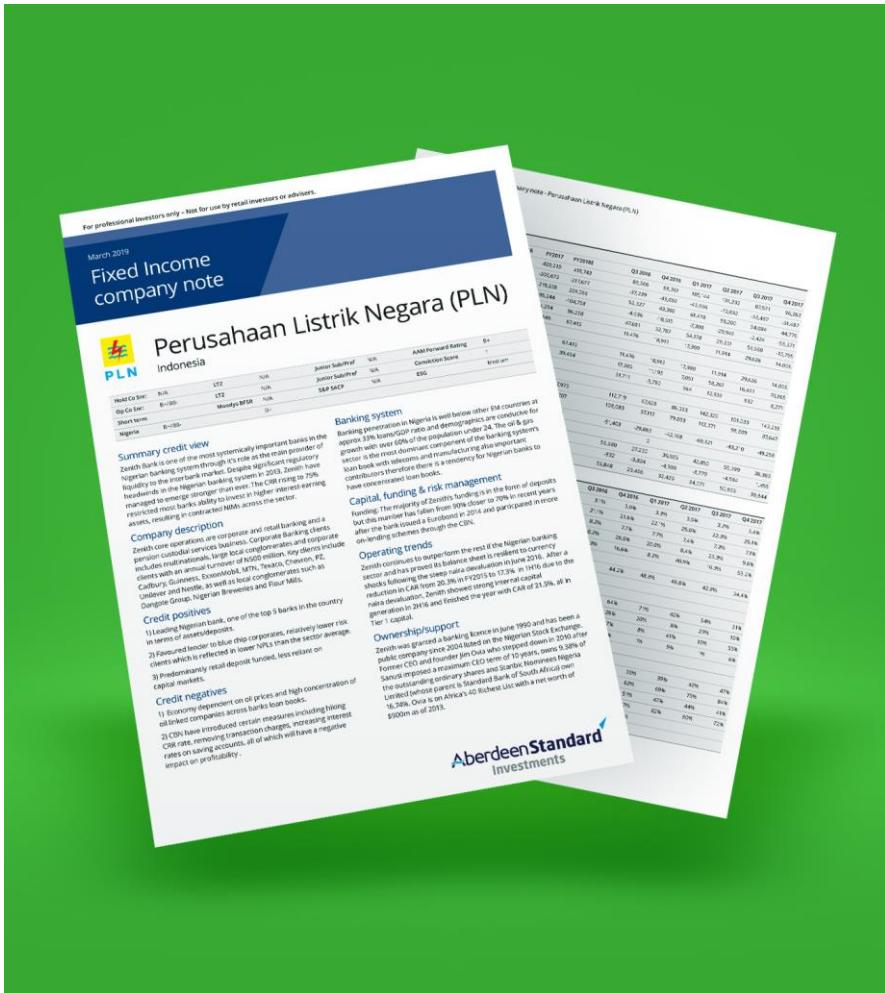
## What is a Country note?

- The country note is an integral part of our investment process
- We complete the same template for over 80 countries
- Each one is updated by the lead country analyst every six weeks to ensure our views are current

## Areas covered:

- What are the drivers?
- What's changing?
- What's priced? Why will the market change its mind and what are the triggers?
- Asset Forecasts (6m)
- Macro Data (IMF/WB)
- Debt Ratios
- High Frequency Data
- Politics
- ESG
- Credit Rating

# Research: Company note



## What is a Company note?

- The basis of our fundamental research
- Required for every position held on the funds
- Updated annually for IG companies and S/A for HY companies

## Areas covered

- What are the operating drivers of the company?
- What will happen to cashflows and leverage under various assumptions?
- Cashflow model with forecasts (12-18 months)
- Debt Schedule
- Covenant Analysis
- ESG
- What are the ratings triggers?

## Recommendation

- Fundamental Credit Trend: Improving/Stable/Deteriorating
- Fundamental Credit Assessment: eg low BB, high BBB
- Relative Value: Cheap/Fair/Expensive

# Case study: Lebanon

## Repeated governance issues eventually ended in default

- **Country coverage:** Mark Baker
- **ASI ESGP score:** 51    **Direction of travel:** Negative
- **Country visits:** March 2018 (Mark Baker), October 2018 (Anthony Simond) and March 2019 (Leong Lin Jing)
- The team conducted three research trips to Lebanon in 2018 and 2019 to meet with government officials, local banks and political experts.
- We became increasingly concerned about Lebanon's weak fiscal performance and the ability of the government to finance itself, leading us to increase our underweight in Q1 2019.
- Shrinking banking sector deposits, high deposit rates and falling FX reserves indicated that the entire financing model of the economy was under stress, which prompted us to exit our remaining position in September 2019. Our underweight in Lebanon was the largest contributor to performance in 2019, generating 67 bps of alpha.
- The country officially defaulted in March 2020 and investors now faces a tough restructuring negotiation given the poor economic fundamentals and complicated political situation in Lebanon.

Source: Aberdeen Standard Investments, JPMorgan, May 2020

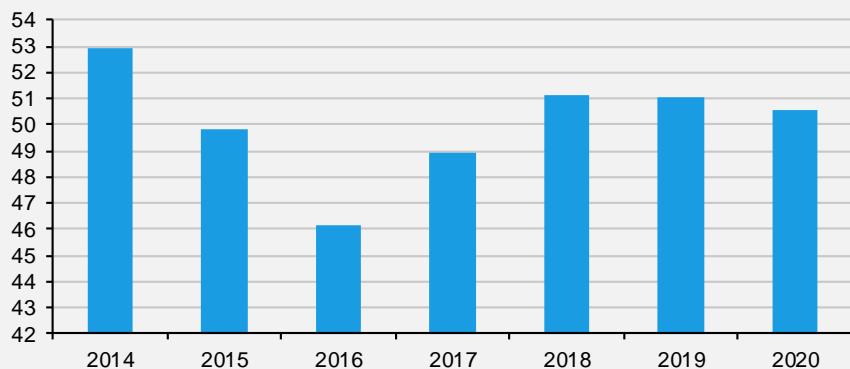
Representative account is a US commingled vehicle used for illustrative purposes only

This case study has been used for illustrative purposes only to demonstrate the investment management style and not as an indication of performance or investment recommendation

Lebanon index return\* versus fund positioning



ASI's ESGP score for Lebanon



# Current positions

## Emerging Markets Debt 50% Hard Currency 50% Local Currency representative account

	Benchmark (%)	Rep acct (%)	Hard currency (%)		Local currency (%)	FX (%)
			Sov/ Quasi-sov <sup>4</sup>	Corp		
Bahamas	-	2.5	2.5			
Barbados	0.0	0.3	0.3			
Belize	0.0	0.6	0.6			
Brazil	6.8	5.5			5.5	3.0
Chile	2.6	3.2			3.2	0.6
Colombia	4.3	0.7			0.7	2.7
Costa Rica	0.5	-				
Dominican Republic	1.2	2.4	1.2		1.2	1.2
Ecuador	0.4	1.1	1.1			
El Salvador	0.4	2.0	2.0			
Jamaica	0.4	-				
Mexico	7.2	7.6	2.0		5.6	5.8
Panama	1.4	0.8	0.5	0.3		
Paraguay	0.4	0.5	0.5			
Peru	3.4	1.4			0.3	1.1
Uruguay	1.3	0.1	0.1			
Venezuela	-	0.4	0.4			
Other <sup>1</sup>	1.4	-				
<b>Americas Total</b>	<b>31.8</b>	<b>29.1</b>	<b>11.2</b>	<b>0.6</b>	<b>17.3</b>	<b>13.9</b>
Angola	0.3	0.2	0.2			
Armenia	0.1	1.2	1.2			
Bahrain	1.1	0.1	0.1			
Benin	-	1.0	1.0			
Czech Republic	2.3	-				4.6
Egypt	1.1	2.9	2.9			
Georgia	0.1	2.3	2.3			
Ghana	0.5	1.0	1.0			
Hungary	2.7	2.7			2.7	0.9
Iraq	0.2	0.7	0.7			
Ivory Coast	0.2	1.4	1.4			
Kazakhstan	1.3	1.1	1.1			
Kenya	0.5	-				
Montenegro	-	0.6	0.6			
Morocco	0.2	1.2	0.8	0.4		

Source: Aberdeen Standard Investments, 31 March 2020 (unaudited data)

1. Argentina, Bolivia, Guatemala, Honduras, Suriname, Trinidad & Tobago. 2. Azerbaijan, Belarus, Cameroon, Croatia, Ethiopia, Gabon, Jordan, Kuwait, Lebanon, Lithuania, Namibia, Tajikistan. 3. Mongolia, Papua New Guinea, Sri Lanka, Vietnam. 4. Quasi-sovereign = 100% government-owned. Benchmark: 50% JPM EMBI Global Diversified and 50% JPM GBI EM Global Diversified. Country allocations are subject to change. Representative account is a US commingled vehicle used for illustrative purposes only. Country allocations are subject to change. Diversification does not ensure a profit or protect against a loss in a declining market. The above is supplemental information and supplements the composite presentations (as provided in the GIPS disclosures) which can be found in appendix. Figures may appear not to add due to rounding

	Benchmark (%)	Rep acct (%)	Hard currency (%)		Local currency (%)	FX (%)
			Sov/ Quasi-sov <sup>4</sup>	Corp		
Mozambique	0.1	0.5	0.5			
Nigeria	0.6	0.7	0.6	0.1		
Oman	1.0	-				
Poland	5.9	-				2.7
Qatar	1.7	4.6	4.6			
Romania	2.1	1.3	0.6		0.7	-0.5
Russia	6.3	7.7			7.7	7.6
Rwanda	-	0.9	0.9			
Saudi Arabia	1.8	3.3	3.1	0.2		
Senegal	0.2	0.7	0.7			
Serbia (Republic)	0.1	-				
South Africa	5.0	6.9	1.5	0.1	5.3	2.8
Tunisia	0.1	1.1	1.1			
Turkey	3.4	0.8			0.8	0.9
U.A.E.	1.5	2.6	1.4	1.2		
Ukraine	1.2	4.3	3.6		0.7	0.7
Uzbekistan	0.1	-				
Zambia	0.1	-				
Other <sup>2</sup>	2.7	-				
<b>Europe/Africa Total</b>	<b>44.3</b>	<b>51.8</b>	<b>31.9</b>	<b>2.0</b>	<b>17.9</b>	<b>19.7</b>
India	0.5	1.6			1.6	1.7
Indonesia	7.5	9.9	3.3		6.6	6.5
Malaysia	4.8	3.6			3.6	3.6
Pakistan	0.4	0.1	0.1			
Singapore	-	0.1			0.1	
Philippines	1.7	-				
Thailand	5.2	1.0			1.0	3.7
Other <sup>3</sup>	4.4	-				
<b>Asia Total</b>	<b>23.9</b>	<b>16.3</b>	<b>3.4</b>	<b>0.1</b>	<b>12.8</b>	<b>15.5</b>
US/Cash		2.8				50.9
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>46.5</b>	<b>2.7</b>	<b>48.0</b>	<b>100.0</b>

YTM (%): 7.70 (rep acct) vs 6.04 (bmk)

Duration (years): 6.52 (rep acct) vs 6.19 (bmk)

# Portfolio construction: risk management

## Identify, measure and control risk

Risk measurement	Forward looking risk	External and internal limits	Attribution and risk policy
Risk platform consistent with investment process	Scenario based downside and upside performance estimates	Client guidelines clearly understood Internal parameters set by team	Feedback loop consistent with investment process
<b>Output:</b> <ul style="list-style-type: none"><li>Proprietary risk analytics</li><li>Risk reporting at security and total portfolio level</li><li>Independent oversight by investment and operational risk teams</li></ul>	<b>Output:</b> <ul style="list-style-type: none"><li>Upside/downside risk estimates at security and total portfolio level</li><li>Risk-adjusted return estimates as basis for team review</li></ul>	<b>Output:</b> <ul style="list-style-type: none"><li>Pre-trade checks</li><li>Appropriate scaling of positions</li><li>Consistency of positions</li><li>Ensure diversification and downside risk control</li></ul>	<b>Output:</b> <ul style="list-style-type: none"><li>Ex-post performance attribution</li><li>Check on risk assumptions</li><li>Monthly Risk Oversight Group and quarterly Fixed Income department reviews</li><li>Segregated dealing function</li></ul>

Quantum<sup>1</sup> and APT<sup>2</sup>

1. Proprietary global risk analysis platform

2. Advanced Portfolio Technologies

3. Charles River Investment Management System

CRIMS<sup>3</sup>

Wilshire Axiom, POINT

Embedded in the Aberdeen culture

# Attribution

## Emerging Markets Debt 50% Hard Currency 50% Local Currency representative account

%	Q1 2020	2019	2018	2017	2016	2015 Oct-Dec
Country allocation	-2.75	0.97	-1.77	1.82	1.82	-0.07
Asset allocation	0.27	-0.48	1.01	0.32	0.20	-0.08
Credit allocation	-0.55	0.25	0.07	0.08	0.30	0.08
Security selection	-0.62	1.72	0.69	0.75	0.65	0.27
Currency allocation	-0.95	-0.78	-1.99	-0.97	-0.26	-0.11
Residual	1.01	0.62	-0.35	0.46	0.18	-0.07
<b>Total</b>	<b>-3.59</b>	<b>2.29</b>	<b>-2.34</b>	<b>2.46</b>	<b>2.89</b>	<b>0.02</b>

Source: Aberdeen Standard Investments, 31 March 2020. **Past performance is not a guide to future results**

Representative account is a US commingled vehicle used for illustrative purposes only. Allocations are subject to change, your portfolio may not have the same allocations

Performance is gross of fees and does not reflect advisory fees, had such fees been deducted, returns would have been lower. The above is supplemental information and supplements the composite presentations (as provided in the GIPS disclosures) which can be found in appendix. Net performance can be found in appendix

# Emerging Markets Debt – 50% Hard Currency 50% Local Currency

## Composite: Emerging Markets Debt – 50% Hard Currency 50% Local Currency

Benchmark: 50% JPM EMBI Global and 50% JPM GBI EM Global Diversified

Base currency: USD (reported in USD)

Gross Returns as of: 30 April 2020

Period	Composite Return Gross (%)	Composite Return Net (%)	Benchmark Return (%)	Composite standard deviation (%)	Benchmark standard deviation (%)	Number of Portfolios (*throughout period)	Dispersion (%)	Market Value at end of Period	Percentage of Firm Assets (%)	Total Firm Assets (Legacy History)
3 Months	-14.84	-14.97	-11.04			<=5 (<=5)		1,004,079,979		
Year to date	-14.42	-14.59	-10.83			<=5 (<=5)		1,004,079,979		
1 Year	-6.21	-6.77	-2.93			<=5 (<=5)		1,004,079,979		
2 Years p.a.	-3.46	-4.04	-1.44			<=5 (<=5)		1,004,079,979		
3 Years p.a.	-0.89	-1.48	0.43	11.96	9.66	<=5 (<=5)		1,004,079,979		
4 Years p.a.	1.95	1.34	1.87	11.53	9.48	<=5 (<=5)		1,004,079,979		
5 Years p.a.	1.42	0.82	1.73	11.50	9.44	<=5 (<=5)		1,004,079,979		
Since inception p.a.	0.72	0.12	1.00	11.02	9.12	<=5 (<=5)		1,004,079,979		
2019	16.30	15.60	14.01	7.68	6.49	<=5 (<=5)		1,175,348,856		
2018	-7.21	-7.77	-5.33	9.32	7.92	<=5 (<=5)		984,832,552	0.16	606,245,078,792
2017	14.68	13.99	12.26	9.08	7.75	<=5 (<=5)		1,218,097,947	0.33	370,088,382,260
2016	12.95	12.28	10.18			<=5 (<=5)		1,044,199,322	0.31	338,134,038,404
2015	-7.91	-8.46	-7.12			<=5 (<=5)		886,921,380	0.23	383,382,349,203
2014 (May)	-5.22	-5.60	-4.01			<=5 (<=5)		813,602,382	0.18	460,247,164,576

Composite inception: 1 May 2014. Note: Where a calendar year return is shown the annualized standard deviation presented is of 36 monthly returns to the calendar year end

# Emerging Markets Debt – 50% Hard Currency 50% Local Currency

## As of: 30 April 2020

### Definition of the Firm

Aberdeen Standard Investments ("ASI" or "the Firm") is defined as all portfolios managed globally by the asset management entities of Standard Life Aberdeen plc excluding Private Equity, Aberdeen Standard Capital and Lloyds Syndicate portfolios. ASI is the global brand name of the investment businesses of Aberdeen Asset Management plc and Standard Life Investments under which all products are now marketed. The Firm inception date is 1st January 2018; and includes track records that either were, or were part of, legacy compliant firms, some of which are compliant from earlier dates: Aberdeen Asset Management plc (compliant from 1st January 1996); Standard Life Investments (compliant from 1st January 1996); and Aberdeen Property (compliant from 1st January 2013). Composite returns, start date and composite and firm assets reported prior to acquisitions represent those of the legacy firm which managed the product at the time. Changes in the firm organization, investment style or personnel have not caused alterations of historical composite performance. Compliant Presentations produced during the period between the annual period end and the date of release to the market of ASI's financial results will not contain the Firm assets or % of Firm assets for that annual period end. The total Firm assets is material non-public information before the official results release date and to release it in GIPS Compliant Presentations would be against the law; and where laws and/or regulations conflict with the GIPS standards, firms are required to comply with the laws and regulations and make full disclosure of the conflict in the compliant presentation.

### GIPS compliance

ASI claims compliance with the Global Investment Performance Standards (GIPS) and has prepared and presented this report in compliance with the GIPS standards. ASI has been independently verified for the periods to 31st December 2018. The verification report is available upon request. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. Verification does not ensure the accuracy of any specific composite presentation. The effective date of compliance is 1st January 1996. The inception date of the composite is 30/04/2014 and it was created on 07/11/2019. A complete list of the Firm's composites, and policies for valuing portfolios, calculating performance and preparing compliant presentations, is available on request.

### Composite description

The composite comprises all discretionary portfolios managed to Aberdeen Standard Investments' Emerging Market Debt: 50% Hard Currency 50% Local Currency strategy without significant country exclusions. The principal investments are government and government related bonds but corporate bonds are also invested in as a secondary area. The principal maturities are Short, Long and Intermediate. Investments are in USD and other emerging market currencies.

### Composite Methodology

Returns are time-weighted total rates of return including cash and cash equivalents, income and realized and unrealized gains and losses. Returns are shown net of non-recoverable tax, whilst recoverable tax is included on a cash basis. Composites results are weighted by

individual portfolio size, using start of period market values. Portfolios are valued at least monthly or on the date of any contribution/withdrawal greater than 8.49% within 1 month. Annual returns are calculated using geometric linking of monthly returns. Exchange rates used are WMR 16:00 Closing Spot Rates. Composites may contain portfolios of different base currencies, translated into a common currency for composite returns using the exchange rates stated above. A fund becomes eligible for inclusion the first full calendar month after funding. Inclusion may be deferred in cases where it has not been possible to implement the investment strategy. Terminated funds leave composites at the end of the calendar month before official notification of termination is received. Results include all discretionary, fee paying accounts of the Firm.

The dispersion of annual returns is measured by the range of the portfolio returns represented within the composite for the full period. Dispersion is not calculated for composites with less than five accounts for the whole period. Additional information on policies for calculating and reporting returns is available on request.

### Presentation of results

Gross returns are presented before management, performance, custodial and other fees but after all trading expenses. Net returns are calculated after the deduction of a representative management fee.

### Primary index description

50% JPM EMBI Global and 50% JPM GBI EM Global Diversified.

### Representative fee description

Emerging Markets Debt - 50% Hard Currency 50% Local Currency 2 Fee: 0.6%

### Derivative instruments

The portfolios in this composite may use foreign exchange forward contracts for efficient portfolio management. Derivatives are not used to leverage the portfolios.

### Disclosure Disclaimer

This composite is a variant of a previous composite "Emerging Markets Debt - 50% Hard Currency 50% Local Currency" closed on 31/08/2019. The decision was made to create two new composites when the impact of country restrictions on one of the portfolio's became apparent. These two new composites were created as of September 2019. At this point the histories from the original 3-fund composite were reallocated into 2 new composites. The first one, Emerging Markets Debt - 50% Hard Currency 50% Local Currency 2, comprised of funds following this strategy with no significant mandated country constraints with performance track records since 30/04/2014. And the second composite, Emerging Markets Debt - 50% Hard Currency 50% Local Currency Country Constrained, which includes mandated country constraints comprising of a history since 30/04/2016.

**Past performance is not a guide to future results.**

# Disclaimer

Important: The above is strictly for private circulation and information purposes only and should not be considered as an offer, or solicitation, to deal in any of the investments mentioned herein. Aberdeen Standard Investments ("ASI") does not warrant the accuracy, adequacy or completeness of the information and materials contained in this document and expressly disclaims liability for errors or omissions in such information and materials. Past performance is not necessarily a guide to the future. Any research or analysis used in the preparation of this document has been procured by ASI or its affiliates for their own use and may have been acted on for their own purpose. The results thus obtained are made available only coincidentally and the information is not guaranteed as to its accuracy. Some of the information in this document may contain projections or other forward looking statements regarding future events or future financial performance of countries, markets or companies. These statements are only predictions and actual events or results may differ materially. The reader must make his/her own assessment of the relevance, accuracy and adequacy of the information contained in this document and make such independent investigations, as he/she may consider necessary or appropriate for the purpose of such assessment. Any opinion or estimate contained in this document is made on a general basis and is not to be relied on by the reader as advice. Neither ASI nor any of its agents have given any consideration to nor have they made any investigation of the investment objectives, financial situation or particular need of the reader, any specific person or group of persons. Accordingly, no warranty whatsoever is given and no liability whatsoever is accepted for any loss arising whether directly or indirectly as a result of the reader, any person or group of persons acting on any information, opinion or estimate contained in this document. The information herein including any expressions of opinion or forecast have been obtained from or is based upon sources believed by ASI to be reliable but is not guaranteed as to accuracy or completeness. The information is given without obligation and on the understanding that any person who acts upon it or otherwise changes his position in reliance thereon does so entirely at his or her own risk. ASI reserves the right to make changes and corrections to its opinions expressed in this document at any time, without notice. Any unauthorized disclosure, use or dissemination, either whole or partial, of this document is prohibited and this document is not to be reproduced, copied, made available to others.

Returns are presented gross of management fees and include the reinvestment of all income. Actual returns will be reduced by investment advisory fees and other expenses that may be incurred in the management of the account. A fee schedule is an integral part of a complete presentation and is described in Part II of the firm's ADV, which is available upon request. The collection of fees produces a compounding effect on the total rate of return net of management fees. As an example, the effect of investment management fees on the total value of a client's portfolio assuming (a) quarterly fee assessment, (b) \$1,000,000 investment, (c) portfolio return of 8% a year, and (d) 1.00% annual investment advisory fee would be \$10,416 in the first year, and cumulative effects of \$59,816 over five years and \$143,430 over ten years. Actual investment advisory fees incurred by clients may vary.

Foreign securities are more volatile, harder to price and less liquid than U.S. securities. They are subject to different accounting and regulatory standards, and political and economic risks. These risks are enhanced in emerging market countries.

Fixed income securities are subject to certain risks including, but not limited to: interest rate (changes in interest rates may cause a decline in the market value of an investment), credit (changes in the financial condition of the issuer, borrower, counterparty, or underlying collateral), prepayment (debt issuers may repay or refinance their loans or obligations earlier than anticipated), and extension (principal repayments may not occur as quickly as anticipated, causing the expected maturity of a security to increase).

Derivatives are speculative and may hurt the Portfolio's performance. They present the risk of disproportionately increased losses and/or reduced gains when the financial asset or measure to which the derivative is linked changes in unexpected ways.

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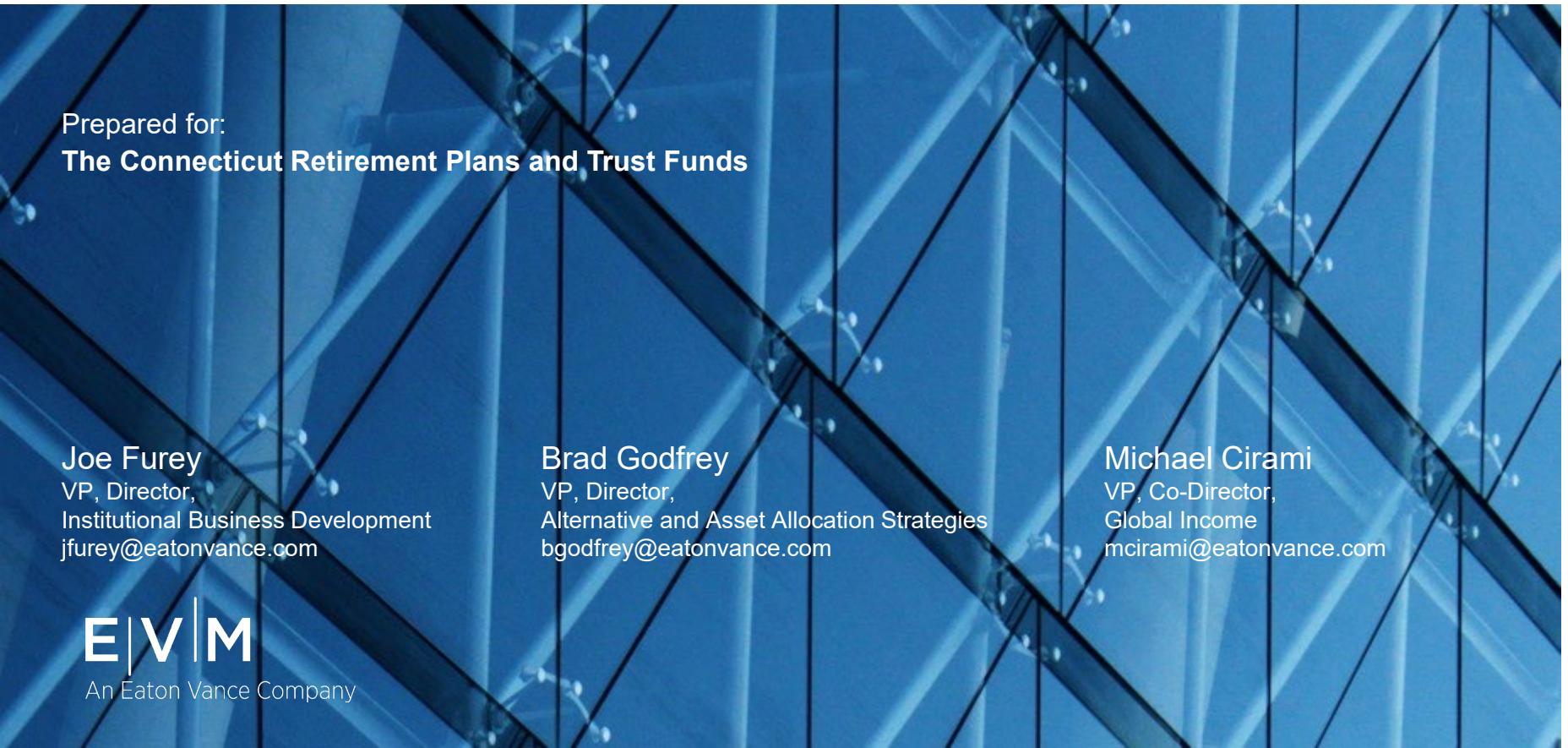
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ID#: US-010620-118356-1

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# Eaton Vance Emerging Markets Debt Opportunities Strategy



Prepared for:  
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**Firm Overview**

**Overview of Our Approach**

**Emerging Markets Debt Opportunities Strategy**

**Examples and Case Studies**

**Portfolio Characteristics and Results**

**Portfolio Historical Positioning and Performance**

**Appendix**



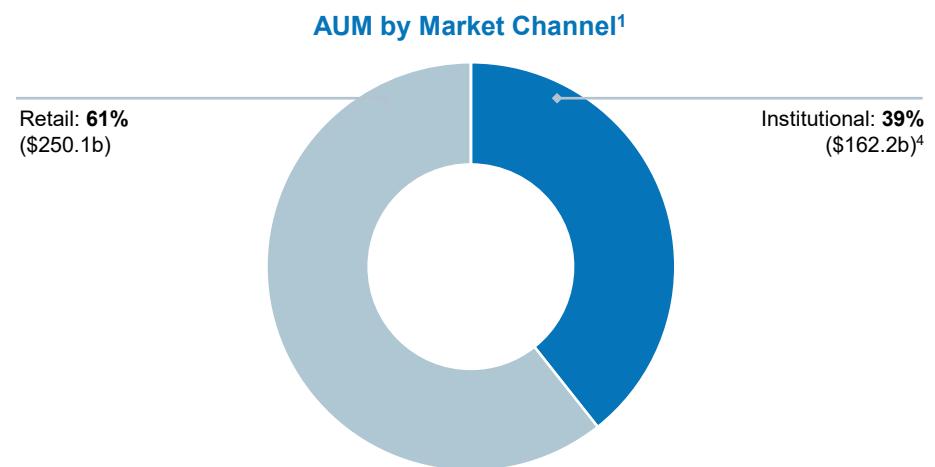
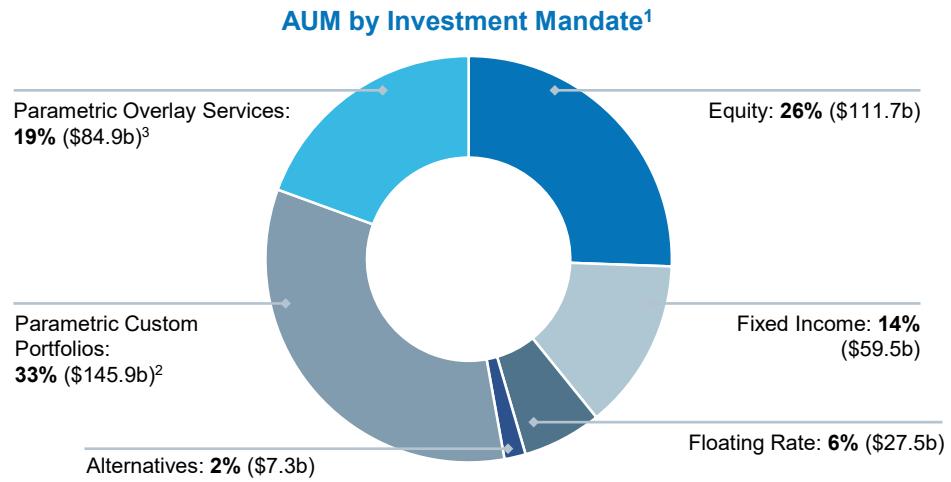
#### Our Firm

- Publicly traded global asset management firm with a history dating back to 1924.
- Offices in North America, UK, Ireland, Germany, Japan, Singapore, and Australia.
- \$436.8 billion in assets under management<sup>1</sup>
- 407 investment professionals globally with over 14 years average industry experience; 217 CFA Charterholders.<sup>1</sup>
- Eaton Vance is a signatory of the Principles for Responsible Investment (UN PRI)\*

#### Our Culture

- **Focus** – Investment management is our only business
- **Ownership Structure** – Voting control by senior management ensures we control our destiny
- **Broad Range of Capabilities** – Assist institutions in building portfolios designed for the outcomes they require
- **Specialized Expertise** – Multi-affiliate model brings range of specialized investment approaches
- **Commitment** – Eaton Vance has been partnering with institutional clients for more than 75 years

\*Implemented by the United Nations Secretary-General, the Principles for Responsible Investment were developed by an international group of institutional investors reflecting the increasing relevance of environmental, social and corporate governance issues to investment practices.



<sup>1</sup>Eaton Vance Management and its affiliates (excluding Hexavest) as of March 31, 2020. <sup>2</sup>"Parametric Custom Portfolios" includes Parametric Seattle's centralized portfolio management, Custom Core and specialty index assets. <sup>3</sup>"Parametric Overlay Services" includes Parametric Minneapolis's custom market capture strategies and derivative strategies to manage a portfolio's exposures or risk profile. <sup>4</sup>Eaton Vance Management's institutional assets represent 6.4% of the total firm assets, with the remaining percentage representing institutional assets of EVM affiliates.

## 4 | Our Institutional Capabilities



History dating to 1924

AUM: \$126.7 billion

### Fundamental active managers

Fundamental active managers of equity, income, alternative and multi-asset strategies.

#### Equity

Global — Developed

Global ex-U.S.

Global Small-Cap

International Small-Cap

Large-Cap Value/Focused Value

Large-Cap Growth/Focused

Growth

Large-Cap Core

U.S. Small-Cap/Small-Mid Cap

Emerging/Frontier Markets

Dividend Capture

#### Fixed Income

Cash

Core/Core Plus

Corporate

Floating-Rate Loan

High Yield

Global High Yield

Investment Grade

Multi-Asset Credit

Preferred Securities

Emerging Markets Debt

Local

Hard Currency

Corporate

Blend

Global Bond

Municipal

Structured

Mortgage-Backed Securities

Collateralized Loan Obligations

#### Alternative

Global Macro



Founded in 1987

AUM: \$270.6 billion

### Investment science in action

Systematic investment strategies and custom portfolio solutions built on a foundation of investment science.

#### Equity

Custom Core™

Global — All Country

Global — Developed

Global ex-U.S.

Emerging Markets

#### Fixed Income

Investment Grade Corporate

Municipal

#### Alternative

Defensive Equity (VRP)

Multi-Asset Volatility Risk Premium

Commodity

Covered Calls/DeltaShift

Put-Selling

Alternative Risk Premia

#### Implementation

Centralized Portfolio

Management

Policy Overlay Services

Customized Exposure

Management



Founded in 2004

AUM: \$9.4 billion

### Top-down global equity managers

Global equity managers utilizing a contrarian, top-down approach.

#### Equity

Climate Focused Global All-Country

Emerging Markets

Global — All Country

Global — Developed

Global — ex-U.S.

Unconstrained Multi-Asset



Founded in 1969

AUM: \$20.1 billion

### Specialists in high-quality investing

Actively managed high-quality U.S. stock and bond portfolios constructed using bottom-up fundamental analysis.

#### Equity

Large-Cap Growth/Focused Growth

Large-Cap Core

Small-Cap Core

#### Fixed Income

Core

Intermediate Duration

Cash Management/Short Duration



Founded in 1976\*

AUM: \$19.4 billion

### Global leader in Responsible Investing

Global leader in responsibly invested equity, income, alternative and multi-asset strategies.

#### Active Equity

Emerging Markets

Large-Cap

Mid-Cap

Small-Cap

International

International Small/Mid-Cap

#### Indexed Equity

US Large-Cap Core

US Large-Cap Growth

US Large-Cap Value

US Mid-Cap Core

Developed Markets Ex-U.S.

#### Fixed Income

Core/Core Plus

Green Bond

Floating-Rate Loan

High Yield

Long Duration

Short Duration

Municipal

#### Alternative

Absolute Return Bond

#### Multi-Asset

Asset Allocation

Balanced

#### Thematic

Global Water

Global Energy Solutions

As of March 31, 2020.

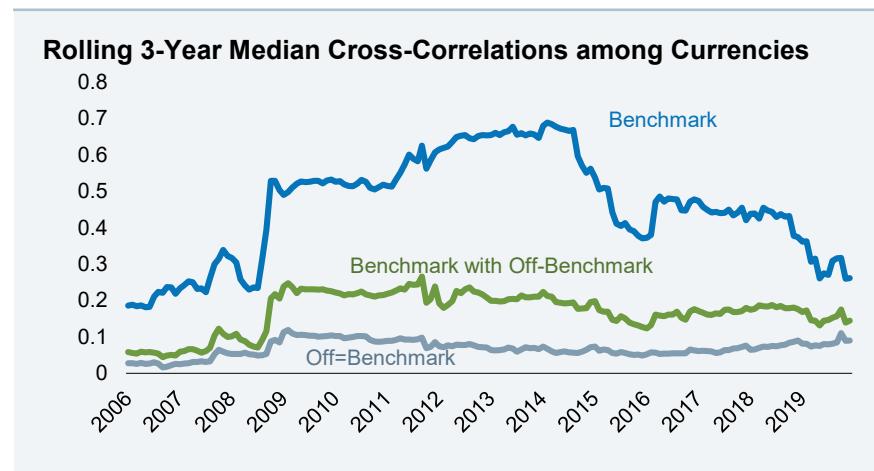
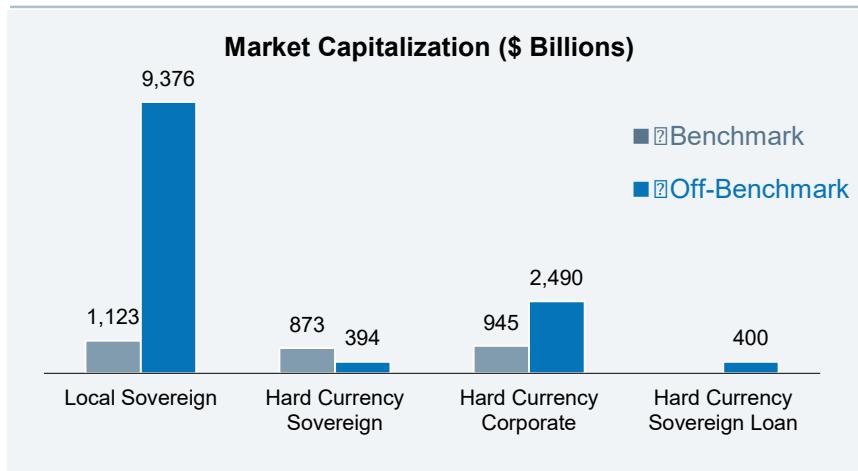
\*Calvert traces its roots to Calvert Investment Management, Inc. which was established in 1976.



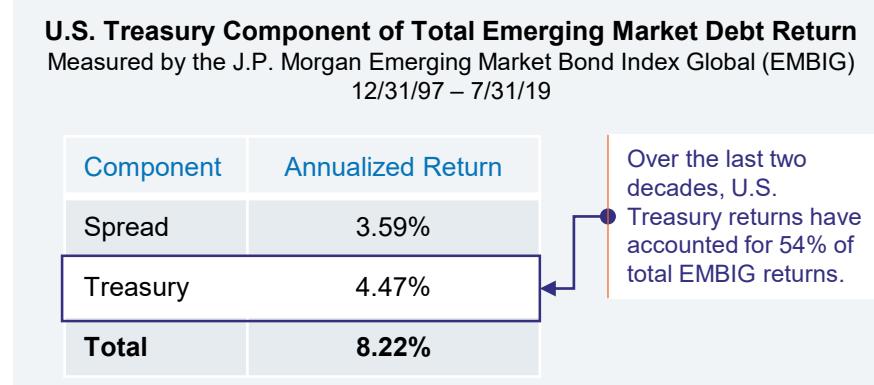
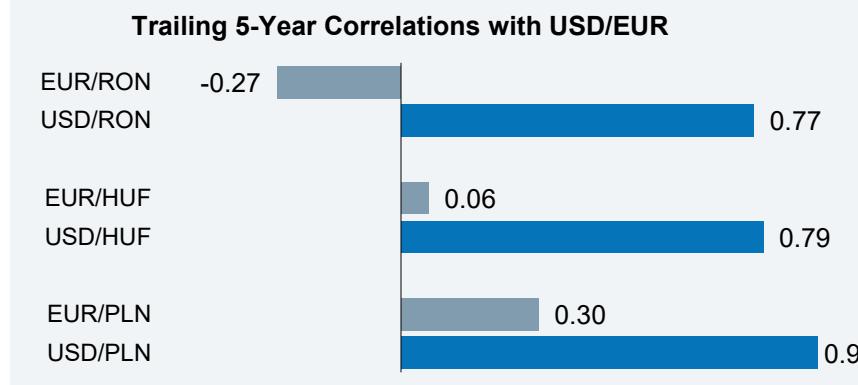
## Overview of Our Approach



We believe that investors have been poorly served by traditional approaches to Emerging Markets Debt.



## Developed-Market Risk Is Embedded in Emerging Debt Markets



Trailing 5-Year USD/EUR Correlation Sources: Bloomberg, Eaton Vance, as of March 31, 2020. Other Chart Sources: JPMorgan, Bank of International Settlements and Eaton Vance proprietary data and calculations as of 6/30/19. **Past performance is not a reliable indicator of future results.** Data provided is for informational use only. Currency Benchmark: JPM GBI EM Global Diversified Index.



**Our 30-year history of managing money across every investable country in the world—developed and emerging—has given us a unique perspective on managing risk.**

### Full Spectrum of Emerging Markets Capabilities



### Competitive Advantages of Our Philosophy and Approach

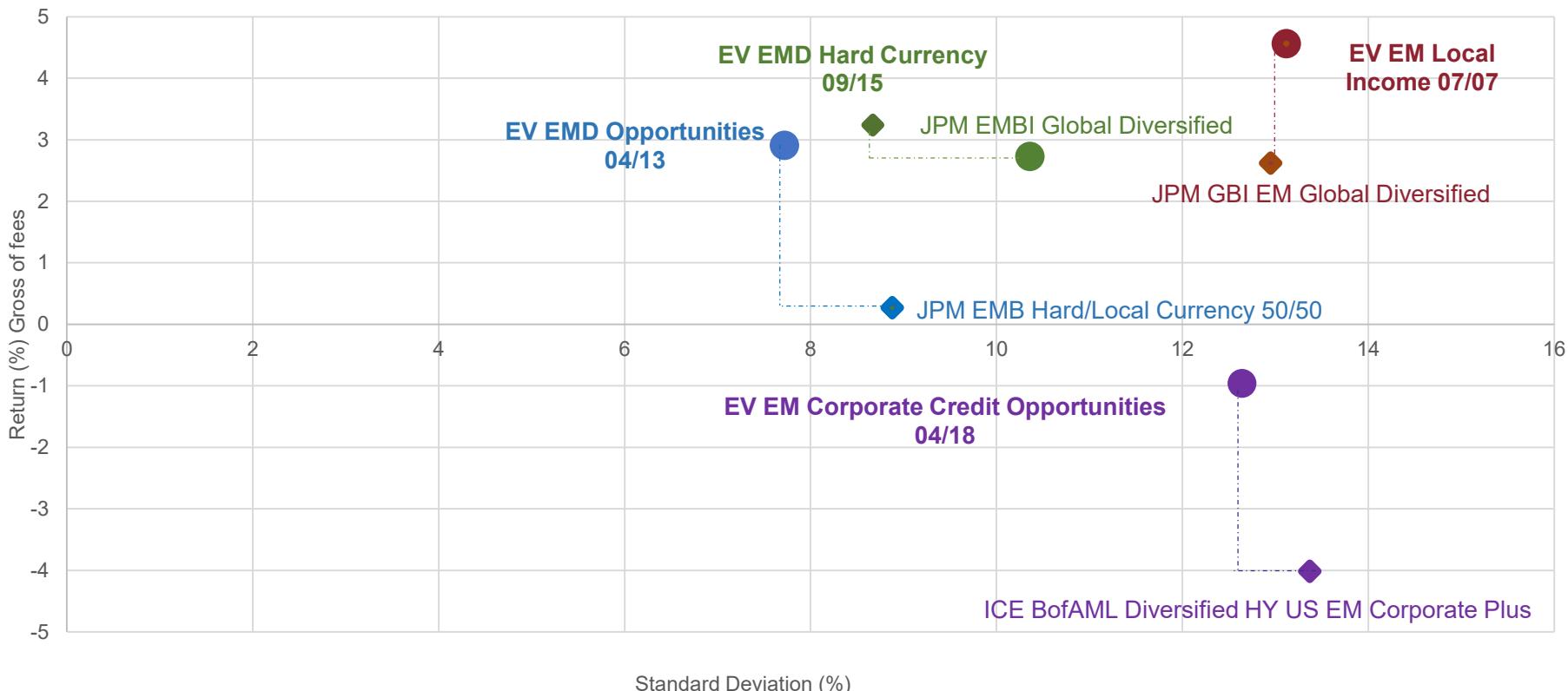
Advantage 1 <b>Area of Coverage</b>	Advantage 2 <b>Approach to Research</b>		Advantage 3 <b>Access to Markets</b>
<b>The universe is vast and differentiated.</b>	<b>Countries matter most.</b>	<b>Mind your risk factors.</b>	<b>Local trading adds measurable value.</b>
We source ideas from the broadest possible opportunity set.	We concentrate our research efforts on countries exhibiting structural change.	We take active positions only in risk factor(s) for which we believe we are adequately compensated and seek offset the rest.	We embrace logistical challenges as opportunities to add operational alpha in our clients' portfolios.

## 8 | Better Risk-adjusted Returns



We leverage our unique perspective to help provide clients with better risk-adjusted returns across the spectrum of Emerging Markets Debt.

### Risk and Return: Eaton Vance Strategies vs. Benchmarks since Composite Inception Dates\* (periods ending March 31, 2020)

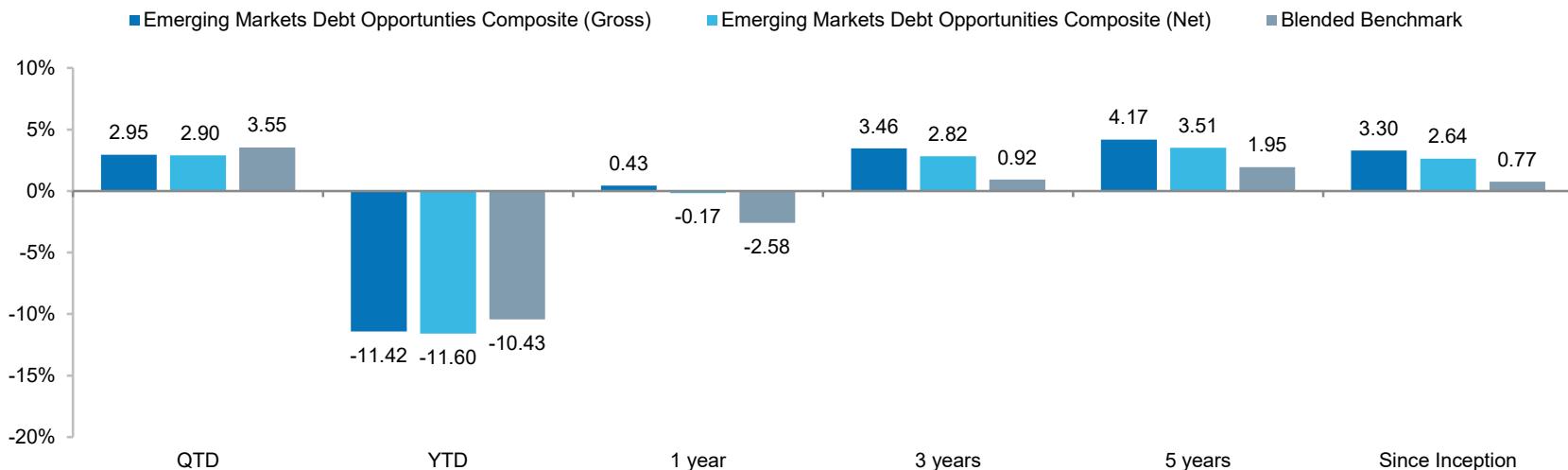


\* Emerging Markets Local Income (7/07 Inception) vs. J.P. Morgan Government Bond Emerging Markets Global Diversified Index. Emerging Markets Debt Opportunities (4/13 Inception) vs. J.P. Morgan EMB Hard Currency/Local Currency 50/50. Emerging Markets Corporate (4/18 Inception) vs. ICE BofAML Diversified High Yield U.S. Emerging Markets Corporate Plus Index. Emerging Markets Hard Currency (9/15 Inception) vs. J.P. Morgan Emerging Markets Bond Index – Global Diversified. Past performance is not a reliable indicator of future results. The information for the Emerging Markets Debt Opportunities Composite is based upon the total net assets of all discretionary, fee-paying accounts eligible for inclusion in such Composite for the periods shown. Gross returns are calculated in US dollars and include the reinvestment of distributions, are after transaction costs, any foreign withholding taxes and other direct expenses, but before management fees, custody charges and other indirect expenses. Such fees and expenses would reduce the results shown. This information is supplemental to the Composite's fully-compliant GIPS® presentation contained herein.

## 9 | Investment Performance



### Eaton Vance Emerging Markets Debt Opportunities Composite: Annualized Results as of April 30, 2020



Annual Results	2019	2018	2017	2016	2015	2014	2013^
Eaton Vance Emerging Markets Debt Opportunities Composite (Gross)	19.33%	-3.44%	14.00%	11.84%	-3.00%	1.18%	-1.48%
Eaton Vance Emerging Markets Debt Opportunities Composite (Net)	18.63%	-4.06%	13.27%	11.13%	-3.63%	0.53%	-1.96%
Blended Benchmark*	13.84%	-4.50%	12.15%	10.06%	-7.11%	0.14%	-5.58%
Excess Return	5.49%	1.06%	1.85%	1.78%	4.11%	1.04%	4.11%
J.P. Morgan GBI-EM Global Diversified	13.47%	-6.21%	15.21%	9.94%	-14.92%	-5.72%	-8.86%
J.P. Morgan EMBI Global Diversified	15.04%	-4.26%	10.25%	10.15%	1.18%	7.43%	-3.06%
J.P. Morgan CEMBI Broad Diversified	13.09%	-1.65%	7.96%	9.65%	1.30%	4.96%	-1.51%

\*J.P. Morgan EMB (JEMB) Hard Currency/Local Currency 50-50. There are no guarantees concerning the achievement of investment objectives, allocations, target returns or measurements such as alpha, tracking error, country weightings and information ratios. Past performance is not a reliable indicator of future results. ^Since inception 04/01/2013. Represents data from 04/01/2013 through 12/31/2013. Source: Eaton Vance and RIMES. The above information is for informational purposes only and does not constitute investment advice and should not be viewed as a recommendation to buy or sell any particular securities or to adopt any investment strategy. The information for the Emerging Markets Debt Opportunities Composite is based upon the total net assets of all discretionary, fee-paying accounts eligible for inclusion in such Composite for the periods shown. Gross returns are calculated in US dollars and include the reinvestment of distributions, are after transaction costs, any foreign withholding taxes and other direct expenses, but before management fees, custody charges and other indirect expenses. Such fees and expenses would reduce the results shown. This information is supplemental to the Composite's fully-compliant GIPS® presentation contained herein. It is not possible to directly invest in an index. Please refer to the Appendix and GIPS® presentations for important additional information and disclosure.



## Performance Statistics Summary: Since Inception (04/01/13)

### Emerging Market Debt Opportunities      Blended Benchmark\*

	Emerging Market Debt Opportunities	Blended Benchmark*
Absolute Return (Gross)	2.91%	0.27%
Standard Deviation	7.72%	8.88%
Excess Return (Gross)	1.83%	--
Tracking Error	3.58%	0.00%
Correlation	0.90	1.00
Beta	0.80	1.00
Sharpe Ratio	0.26	-0.07
Information Ratio	0.74	0.00
Upside Capture	79.53	100
Downside Capture	61.03	100
Max Drawdown	-14.51%	-13.60%
Nominal Yield	9.23%	6.03%

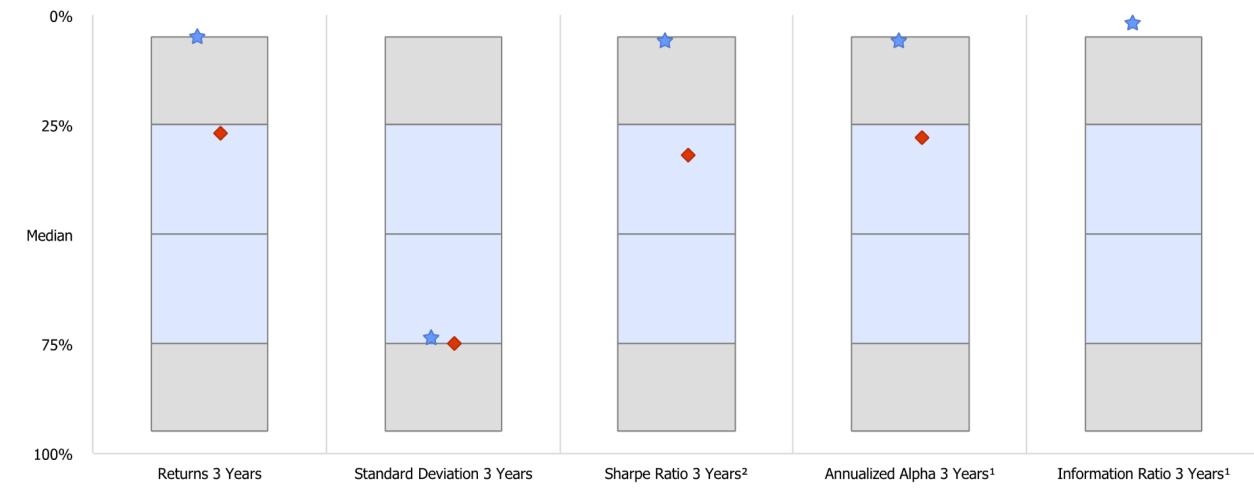
Please see slide 9 for net performance of the composite. Source: Zephyr as of March 31, 2020. \*J.P. Morgan EMB (JEMB) Hard Currency/Local Currency 50-50. **Past performance is not a reliable indicator of future results.** The information above is presented gross of fees and is based upon the total assets of a single Representative Account which is included in the Emerging Markets Debt Opportunities (Composite) for the periods shown. This account was chosen because it is unrestricted and fairly represents the overall style of the manager as described. The above information, including that attributed to the Representative Account, is supplemental to the Composites GIPS® presentation contained herein as an integral part of this material. Please refer to the important additional information and disclosures contained herein.

# 11 | Performance Analysis: 3 Years



## Eaton Vance Emerging Markets Debt Opportunities Composite (Gross), 3 Years as of March 31, 2020

As Of: March 31, 2020



Universe: eVestment Global Emerging Mkts Fixed Income - Blended Currency

	Returns 3 Years		Standard Deviation 3 Years		Sharpe Ratio 3 Years <sup>2</sup>		Annualized Alpha 3 Years <sup>1</sup>		Information Ratio 3 Years <sup>1</sup>	
		Rk		Rk		Rk		Rk		Rk
5th percentile		2.87		13.20		0.17		2.97		0.67
25th percentile		0.25		11.81		-0.15		0.14		0.03
Median		-0.67		10.60		-0.23		-0.78		-0.27
75th percentile		-1.44		9.39		-0.28		-1.49		-0.48
95th percentile		-3.18		6.39		-0.41		-3.03		-0.81
# of Observations		68		68		68		68		68
★ Eaton Vance: EM Debt Opportunities	2.92	5	9.52	74	0.12	6	2.80	6	0.86	2
◆ J.P. Morgan: EMB (JEMB) Hard/Local Ccy 50/50	0.16	27	9.42	75	-0.17	32	0.00	28	---	---

Results displayed in USD using Spot Rate (SR).

<sup>1</sup>J.P. Morgan EMB (JEMB) Hard/Local Ccy 50/50; <sup>2</sup>FTSE 3-Month T-Bill

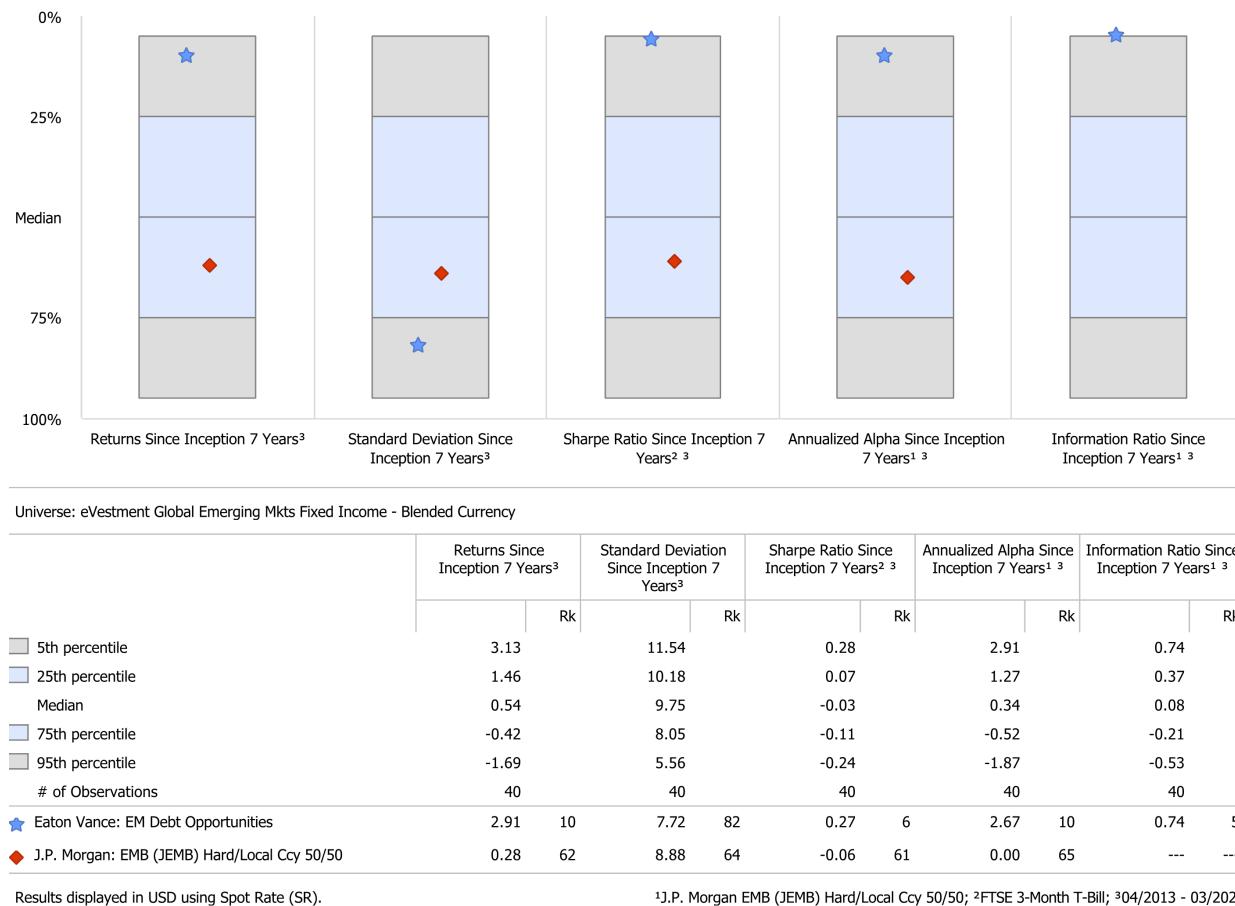
Please see slide 9 for net performance of the composite. **Past performance is not a reliable indicator of future results.** Source: eVestment Alliance. This information is for illustrative purposes only, is subject to change at any time and should not be considered investment advice or a recommendation to buy or sell any particular security. The information is based upon the total assets of all fee-paying discretionary accounts comprising the Emerging Markets Debt Opportunities Composite for the periods shown. Gross returns for the Composite are calculated in U.S. dollars, include the reinvestment of distributions, and are after transaction costs, any foreign withholding taxes and other direct expenses, but before management fees, custody charges and other indirect expenses. Such fees and expenses would reduce the results shown. This information is supplemental to the Composite's Global Investment Performance Standards (GIPS®) presentation contained herein. Please refer to the GIPS® presentation and the Appendix for important additional performance information and disclosure. It is not possible to directly invest in an index.

## 12 | Performance Analysis: Since Inception



### Eaton Vance Emerging Markets Debt Opportunities (Gross), Since Inception as of March 31, 2020

Since Inception 7 Years 4/2013 - 3/2020



Please see slide 9 for net performance of the composite. **Past performance is not a reliable indicator of future results.** Source: eVestment Alliance. This information is for illustrative purposes only, is subject to change at any time and should not be considered investment advice or a recommendation to buy or sell any particular security. The information is based upon the total assets of all fee-paying discretionary accounts comprising the Emerging Markets Debt Opportunities Composite for the periods shown. Gross returns for the Composite are calculated in U.S. dollars, include the reinvestment of distributions, and are after transaction costs, any foreign withholding taxes and other direct expenses, but before management fees, custody charges and other indirect expenses. Such fees and expenses would reduce the results shown. This information is supplemental to the Composite's Global Investment Performance Standards (GIPS®) presentation contained herein. Please refer to the GIPS® presentation and the Appendix for important additional performance information and disclosure. It is not possible to directly invest in an index.



## Emerging Markets Debt Opportunities



Since inception, our Emerging Markets Debt Opportunities strategy has beaten its benchmark while exhibiting meaningfully less benchmark volatility.

## Client Benefits

### Full Spectrum of Opportunities

- Local Sovereigns
- External Sovereigns
- Corporates
- Loans

### Efficient Fit into Overall Portfolio

- Pure EMD exposure
- Lower drawdowns
- 4-8% volatility target

### Attractive Performance Target Profile

- 200-300 bps Excess Return
- 300-600 bps Tracking Error
- 0.5-1.0 Sharpe Ratio

## Competitive Advantages

### 1. Area of Coverage

We source ideas from the broadest possible opportunity set—100+ countries—which includes every country with investable assets.

### 2. Approach to Research

At the country level, we concentrate our research on countries exhibiting structural change.

At the security level, we take active positions only in the risk factor(s) for which we are adequately compensated and offset any undesired exposures.

### 3. Access to Markets

We embrace logistical challenges as opportunities to add operational alpha in our clients' portfolios.

The Emerging Markets Debt Opportunities portfolio has a blended benchmark, comprised of 50% J.P. Morgan EMB (JEMB) Hard Currency 50% JEMB Local Currency 50-50. There are no guarantees regarding the achievement of the Strategy's investment objectives, target returns or measurements of other characteristics.



The team analyzes opportunities from multiple points of view—fundamental, quantitative, and operational—to determine the optimal investment positions for our clients' portfolios.

## COUNTRY ANALYSIS & SECURITY SELECTION

### Regional

#### CEEMEA

- Michael Cirami, CFA**  
Co-Director, Portfolio Manager
- Sarah Orvin, CFA**  
Portfolio Manager/Sr. Analyst
- 1 Research Analyst

#### ASIA

- Eric Stein, CFA**  
Co-Director, Portfolio Manager
- Kyle Lee, CFA**  
Portfolio Manager/Sr. Analyst
- 1 Research Analyst

#### LATAM

- John Baur**  
Portfolio Manager
- Patrick Campbell, CFA**  
Portfolio Manager/Sr. Analyst

### Country Research

- Marshall Stocker, Ph.D., CFA**  
Director of Country Research
- 4 Research Associates

### Cross-Regional

- Danat Abdurakhmanov, CFA**  
Portfolio Manager/Sr. Analyst
- Federico Sequeda, CFA**  
Portfolio Manager/Sr. Analyst

### Portfolio Strategy

- Akbar Causer**  
Portfolio Manager  
Corporate Credit Strategist
- 1 Corporate Credit Analyst
- Brian Shaw, CFA**  
Portfolio Manager  
Interest Rates Strategist

### Institutional Portfolio Management

- Bradford Godfrey, CFA**  
Institutional Portfolio Manager
- 2 Product Managers

- Matthew Murphy, CFA, CAIA**  
Institutional Portfolio Manager

## COUNTRY ACCESS

### Trading and Operations

- Michael O'Brien, CFA**  
Director of Global Trading
- 5 Traders
- 6 Trading Assistants

## PORTFOLIO CONSTRUCTION

### Quantitative Analysis

- Zamir Klinger, FRM**  
Director of Quantitative Portfolio Analysis
- 3 Portfolio Analysts
- 2 Quantitative Analysts



**Our investment process capitalizes on our unique advantages while continually expanding the investment opportunity set.**

**Advantage 1:  
Area of Coverage**

**Advantage 2:  
Approach to Research**

**Advantage 3:  
Access to Markets**



Source ideas from  
broadest possible  
opportunity set

Focus on countries  
poised for structural  
change

Align country analysis  
with highly specific risk  
factors

Seek to mitigate risk, reduce  
transaction costs and exploit  
local-market price differentials

# 17 | Investment Universe: 100+ Emerging Market Countries



We consider every emerging market country with investable assets — 100+ — resulting in a \$15+ trillion opportunity set.

## Benchmark Representation vs. Eaton Vance Investable Universe (Benchmark Plus Off-Benchmark)

### Local Sovereigns

Number of Countries



Market Capitalization (Billions USD)

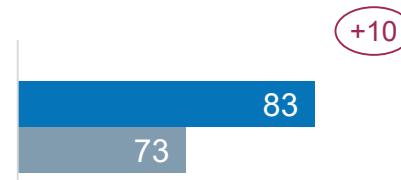


■ Eaton Vance Universe (Index plus Off-Index)

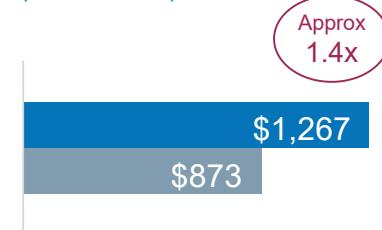
■ JPM GBI EM Global Diversified

### Hard Currency Sovereigns

Number of Countries



Market Capitalization (Billions USD)

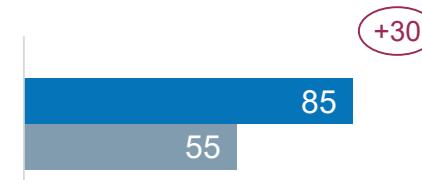


■ Eaton Vance Universe (Index plus Off-Index)

■ JPM GBI EM Global Diversified

### Hard Currency Corporates

Number of Countries



Market Capitalization (Billions USD)



■ Eaton Vance Universe (Index plus Off-Index)

■ JPM GBI EM Global Diversified

### Hard Currency Sovereign Loans

Number of Countries



Market Capitalization (Billions USD)



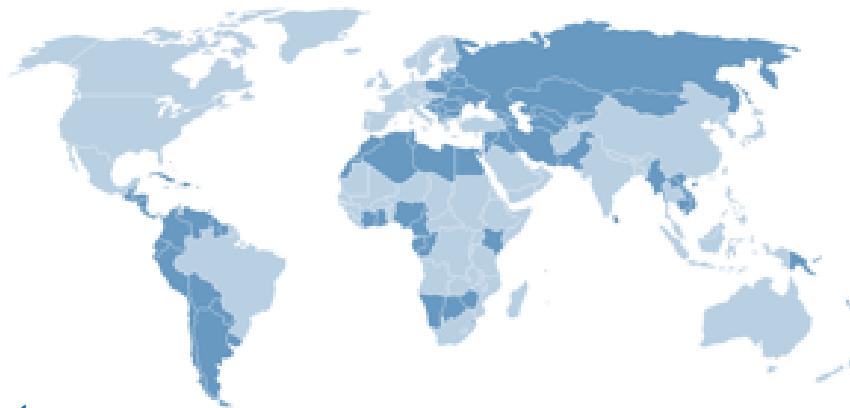
■ Eaton Vance Universe (Index plus Off-Index)

■ No Index



**Our first task is to understand the path of a country's politics and policies.**

## Overview



- Prioritize structural change
- Seek out diverse sources of information
- Understand full spectrum of influences

## Inputs

### Politics

- Domestic political calendar
- Structural reform agenda
- Geopolitical standing
- Relationships with IFIs

### Fiscal Policy

- Budget
- Taxes
- Debt management strategy

### Monetary Policy

- Inflation
- Soundness of money
- Central bank mandate

### Non-Financial Factors (ESG)

- Environmental policies
- Social dynamics
- Governance structures

### Income Policy

- Price controls
- Pensions
- Wages

### Trade Policy

- Trade agreements
- Tariffs
- Quotas
- Ease of doing business



We add value by exploiting knowledge gaps in uncovered countries as well as capitalizing on a longer investment time horizon.

Information Sources	Catalysts for Change
<b>Field</b> <ul style="list-style-type: none"><li>• 60-80 country visits per year</li><li>• Public and private sources</li><li>• Established local networks</li></ul>	<b>1. Perception Problem</b> <p>Country has a perception problem where the team believes the facts on the ground contradict the market's perception of the circumstances.</p>
<b>Technology</b> <ul style="list-style-type: none"><li>• Iris database</li><li>• 24/7 information harvesting<ul style="list-style-type: none"><li>– News</li><li>– Economic data</li><li>– Market price movements</li></ul></li></ul>	<b>2. Imminent Event</b> <p>There is a specific event in the near future, such as an election or piece of legislation, that requires an assessment of probabilities of likely outcomes.</p>
<b>Team</b> <ul style="list-style-type: none"><li>• Daily regional news meetings with PMs</li><li>• Weekly group-wide research meeting</li><li>• Weekly PM risk management meeting</li><li>• Annual research onsite</li></ul>	<b>3. Irrational Pricing</b> <p>Asset prices have moved without justification from the team's perspective.</p>



## ESG research is an integral part of sovereign analysis and part of our process in analyzing countries.

### Engagement

- 50+ engagement activities with 25 different countries in the past 5 years.
- The purpose of engagement is to seek to help influence better governance at the sovereign level, social policies/outcomes, and/or environmental policies/outcomes.

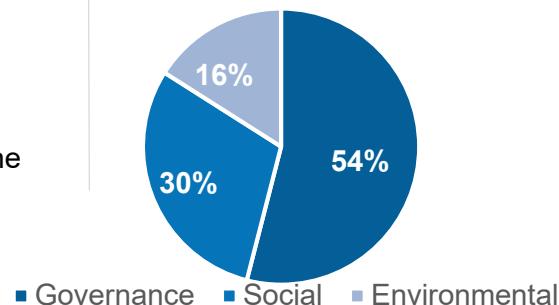
*Example:* Working with all relevant entities to assist Serbia as some of the country's bonds move towards index inclusion.

### Bespoke Qualitative Analysis

- Dedicated country analysts identify key *material* ESG issues related to a specific to each country
- Weightings are based on the relative *materiality* for each individual country
- Countries are scored 1-10 with consideration for the current situation along with an assessment of the expected direction and rate of change of these *material* ESG factors

### Quantitative Scoring

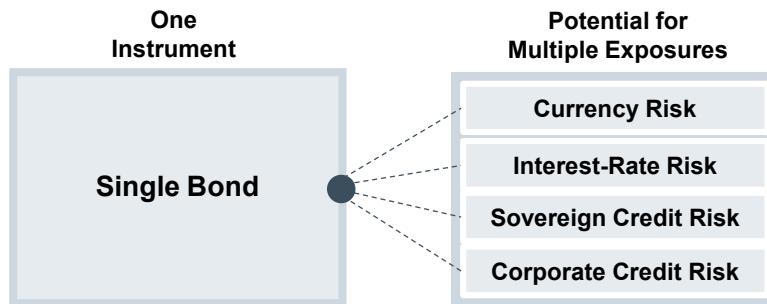
- Use ESG metrics from 3<sup>rd</sup> party sources to arrive at one cohesive country score that permits for cross-country comparisons





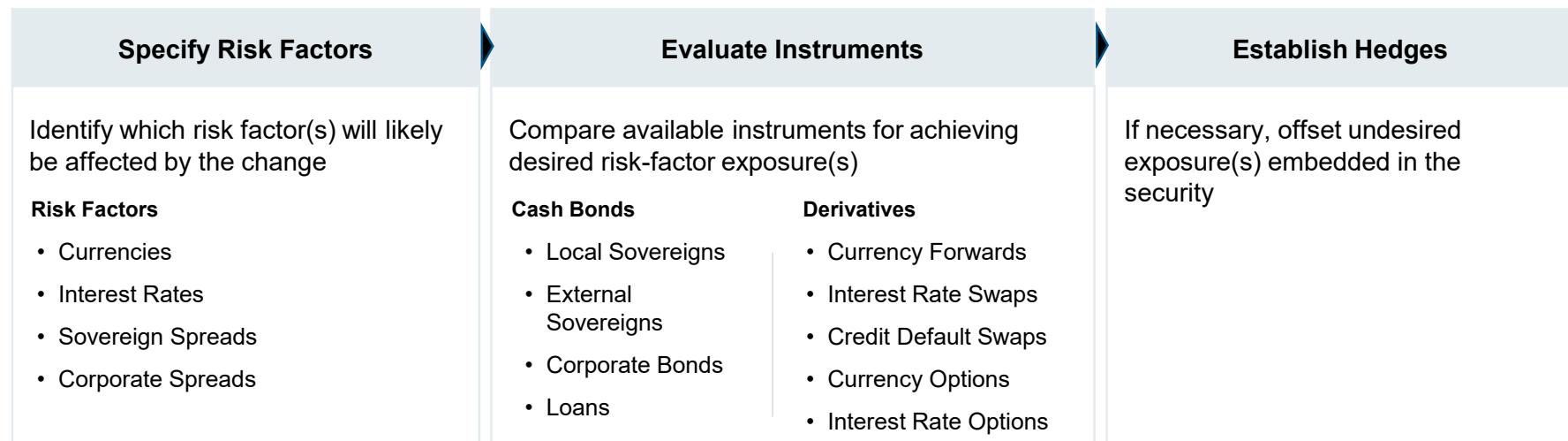
We seek to add value by achieving highly specific risk-factor exposures and eliminating unintended bets.

## Overview



- Decompose each bond into its discrete risk factors
- Identify best instrument to achieve desired exposure
- Offset undesired exposures embedded in the security

## Analysis





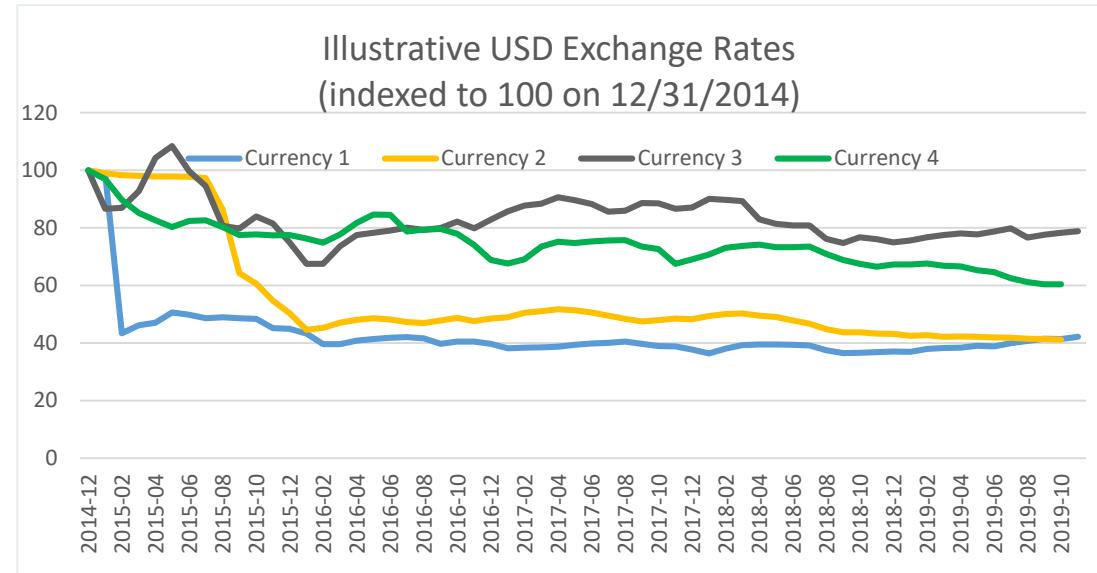
By analyzing external accounts and portfolio flows, we look for opportunities to add value through select currency exposures.

## Currency Analysis

### Framework

- Analyze economic and financial data to determine if currency is meaningfully misaligned
- Identify countries that are implementing, or are expected to implement, policies that are supportive to currency risk
- Consider short-term, interest-rate differentials as a supportive factor or margin of safety for currency investments

## Example



### Inputs

#### Economics

- Growth
- Inflation
- External accounts

#### Policy

- Central bank independence
- FX policy
- FX reserves

#### Politics

- Policymaker FX preferences
- FX importance
- Geopolitics

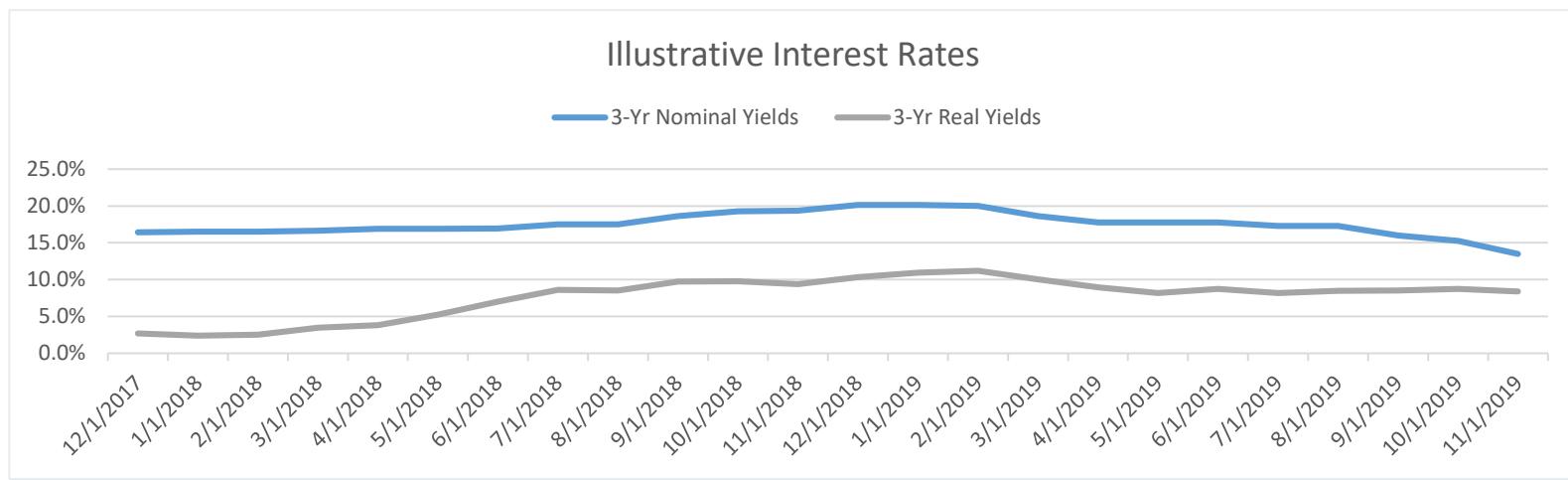
#### Valuation

- Interest rate/inflation differentials
- Real effective exchange rate



By analyzing monetary policy, economic growth, and inflation trends, we look for opportunities to add value through select interest-rate exposures.

### Example



### Inputs

#### Economics

- Growth
- Inflation
- External accounts

#### Politics

- Policymaker interest rate preferences
- Geopolitics

#### Policy

- Central bank independence
- Interest-rate policy
- Fiscal policy

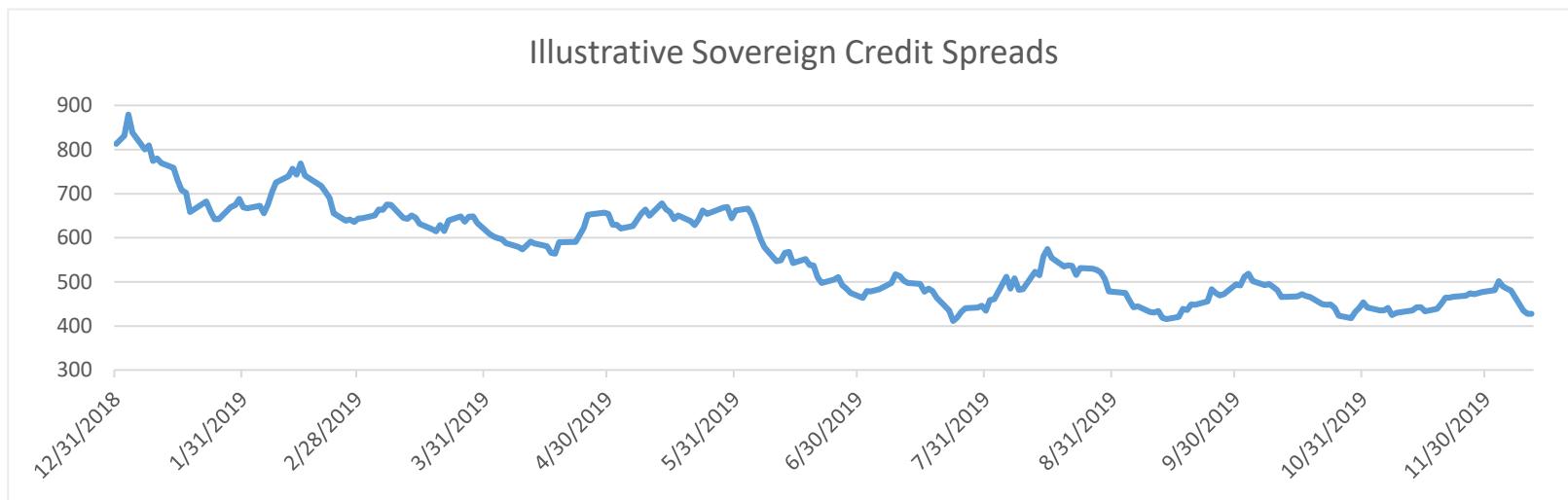
#### Valuation

- Interest rate/inflation differentials
- Nominal and real yields



By analyzing fiscal policy and debt dynamics, we look for opportunities to add value through select sovereign credit exposures.

### Example



### Inputs

#### Economics

- External debt profile
- External accounts
- Sovereign assets

#### Politics

- Willingness to pay
- Relationships with IFI's
- Geopolitics

#### Policy

- Fiscal balances
- Budget
- Debt management strategy

#### Valuation

- Spreads
- Default probability model



We spend the bulk of our time assessing the appropriate credit risk premium for an investment idea.

## Example

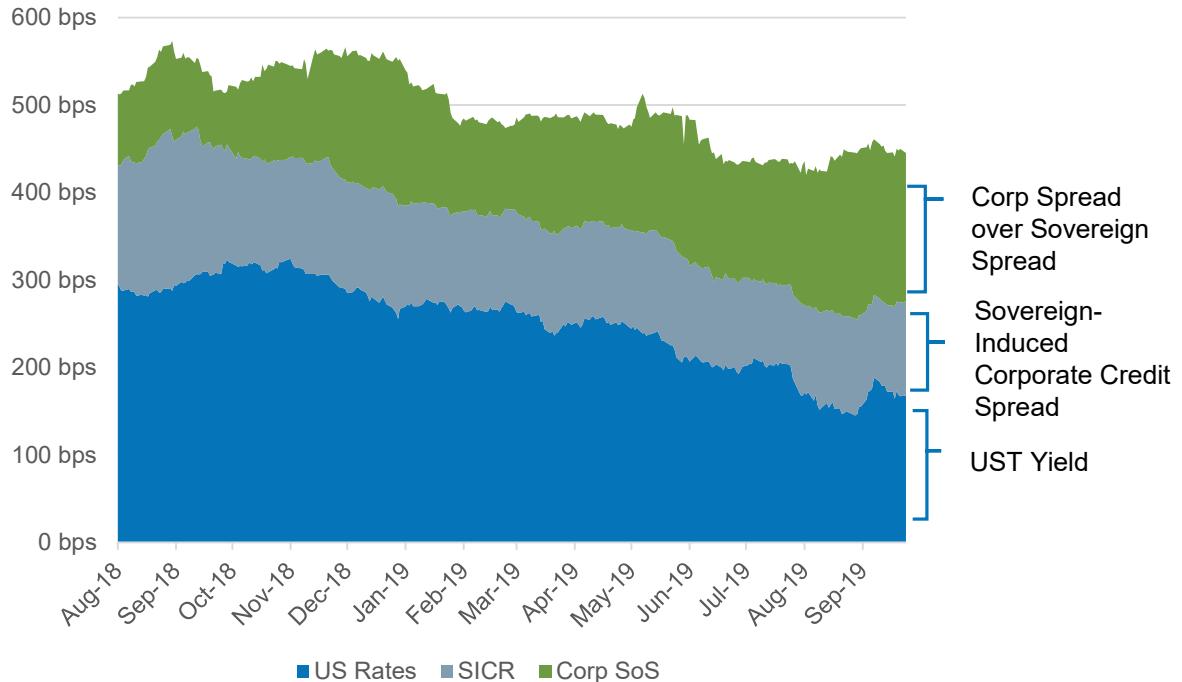
### Company Coverage

- 200 companies in initial review
- 160 companies selected for further research
- 80 in-person meetings and visits
- 40 corporates selected for final evaluation of risk/return potential

### Yield Components

- Decompose the corporate yield into its three components
  - U.S. Treasury yield
  - Sovereign credit spread
  - Corporate credit spread over the sovereign market

### EM Corporate Bond (South American chemicals company 2028s)



### Our Valuation Approach

#### Sovereign-Induced Credit Risk Premium (SICR) Method

**SICR** = Probability of Sovereign Default x Probability of Corporate Default Given Sovereign Default x Expected Loss

**EM Corporate Bond Spread = SICR + Corporate Credit Risk Premium**

- Uses default-driven intrinsic valuation to isolate risk factors more appropriately
- Enables assessment of relative value opportunities vs. developed-market corporates with similar fundamentals
- Requires proprietary assumptions for joint default probabilities and recovery values



The Emerging Markets Debt Team has proprietary analytic systems that help us to identify bonds that are rich or cheap relative to their respective yield curves.

## Example

**Analysis**

**Return potential**

- Absolute
- Relative to drawdown
- Relative to volatility

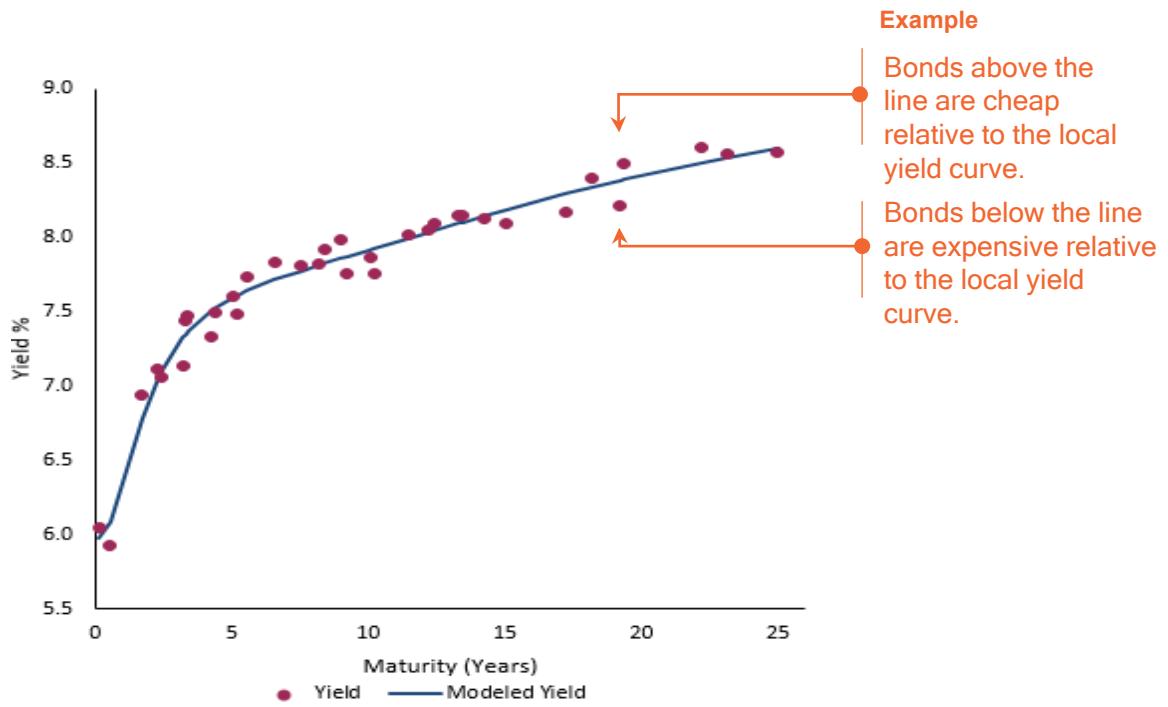
**Liquidity**

- Depth of issue
- Trading volume/frequency
- Market segmentation/positioning

**Bond Covenants**

### Indonesia Government Bond Curve

Yields vs. Modeled Yield

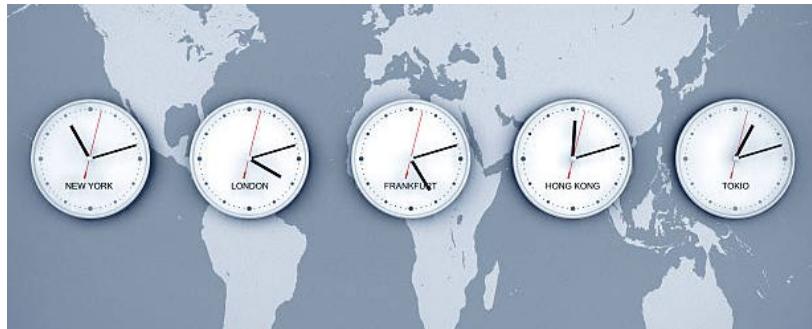


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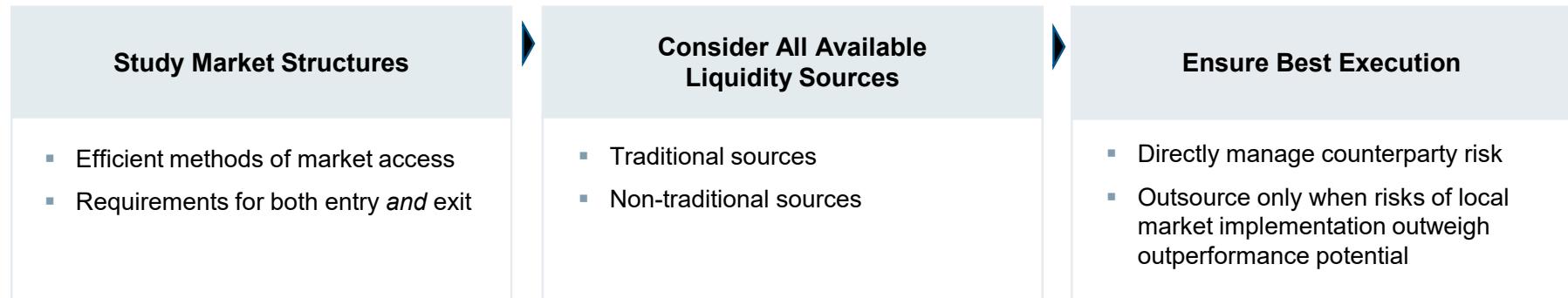
Continually working to expand our trading networks over 20+ years has given us unparalleled market access, enabling us to seek to add operational alpha in our clients' portfolios.

### Objectives



- **Mitigate risk**
- **Reduce transaction costs**
- **Exploit local-market price differentials**

### Assessment

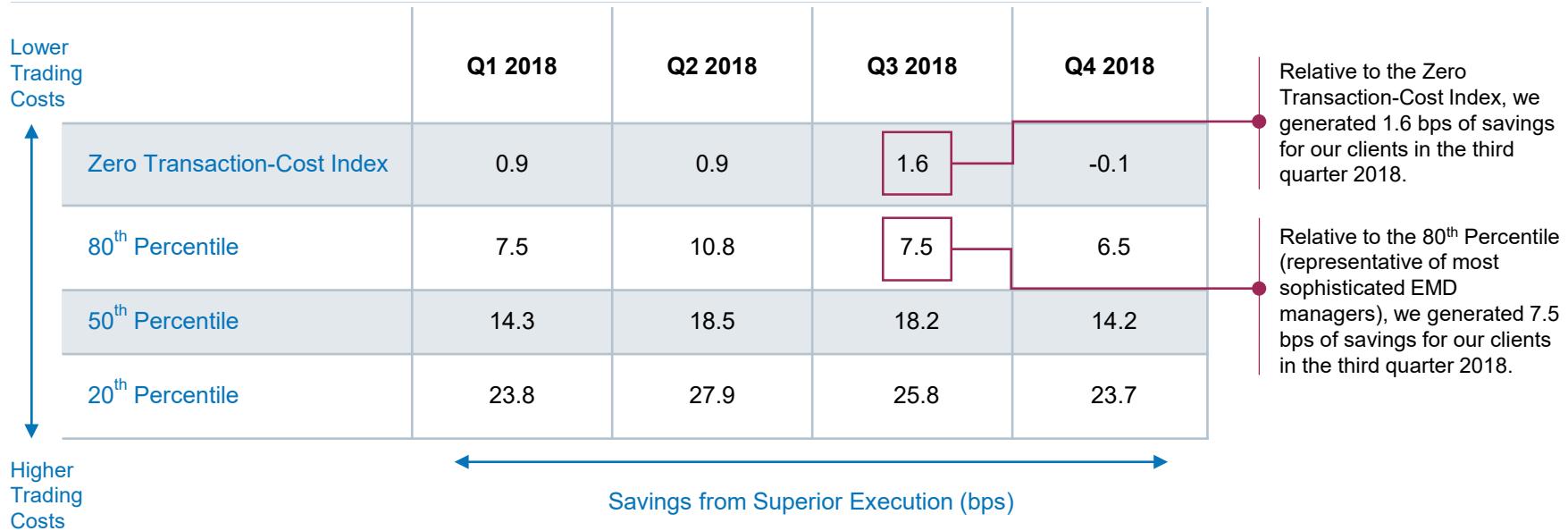




We have invested in trading technology and human capital consistently over the last 20+ years and continue to reinvest a portion of management fees into this area to maintain our competitive edge.

### Example: Trading Efficiency vs. Competitors\*

FX Transparency Second-by-Second Report



\*The investment team does not believe it is possible to provide a perfectly accurate estimate of transaction costs in any market environment due to market-structure differences across currency markets, local debt markets and external/corporate debt trading markets at any one time. We can, however, confidently measure how well we transact relative to the broader industry. We use FX Transparency ("FXT"), an independent provider of foreign exchange transaction-cost analyses to pensions, endowments, corporate treasurers and asset managers, to assess the strategy's transaction costs relative to its peers in the local markets. As of this writing, there are approximately 300 entities that allow FXT to track every currency transaction across a set time frame and to evaluate the transaction costs for each entity relative to other members in the cohort.

Source: FX Transparency, Eaton Vance Management. Annually updated. Data as of 12/31/18. For illustrative purposes only.



We prioritize positions based on country fundamentals, risk/return expectations, portfolio fit and the price of liquidity.

## Overview

Tier 1		Tier 2		Tier 3	
Fundamentals	Rapidly Improving	Fundamentals	Improving	Fundamentals	Steady
Risk/Return	High Expected Sharpe	Risk/Return	Positive Expected Sharpe	Risk/Return	Market Expected Sharpe
Portfolio Fit	Low Correlation	Portfolio Fit	Medium Correlation	Portfolio Fit	High Correlation
Price of Liquidity	Low	Price of Liquidity	Medium	Price of Liquidity	High

## Example

Local Debt	Currency	Rates	Local Debt	Currency	Rates	Local Debt	Currency	Rates
Ukraine	12.5%	0.3 yrs	Nigeria	4.0%		Brazil	1.9%	
Egypt	10.2%		Uganda	3.5%		Bos. & Herz.	0.2%	
Serbia	10.1%	0.5 yrs	Philippines	3.0%		Thailand	0.2%	
China		0.5 yrs	Dominican Rep.	2.5%	0.1 yrs	Indonesia	0.1%	
Thailand		0.4 yrs	Sri Lanka	2.3%	0.1 yrs	Dominican Rep.		0.1 yrs
Peru		0.4 yrs	Rep. of Georgia	2.2%		Egypt		0.1 yrs
Mexico		0.3 yrs				Sri Lanka		0.1 yrs
Credit	Sovereign	Corporate	Credit	Sovereign	Corporate	Credit	Sovereign	Corporate
Rep. of Moldova		2.0%	Bahrain	4.9%		Egypt	1.7%	
Rep. of Georgia		1.8%	Ukraine	3.6%		Fiji	1.3%	
Colombia		1.2%	Benin	2.5%		Turkey	1.1%	
Turkey		1.1%	El Salvador	2.5%	0.5%	Tanzania	1.0%	
Brazil		1.1%	Kenya	2.2%		Barbados	0.9%	
			Nigeria		0.9%	Ethiopia	0.7%	
			Mexico		0.8%	No. Macedonia	0.5%	
			Jamaica		0.7%	Sri Lanka	0.4%	
			Argentina		0.6%	Bahamas	0.3%	
			Peru		0.5%	Costa Rica		0.4%
						Iraq		0.3%
						Bulgaria		0.3%
						Belarus		0.3%

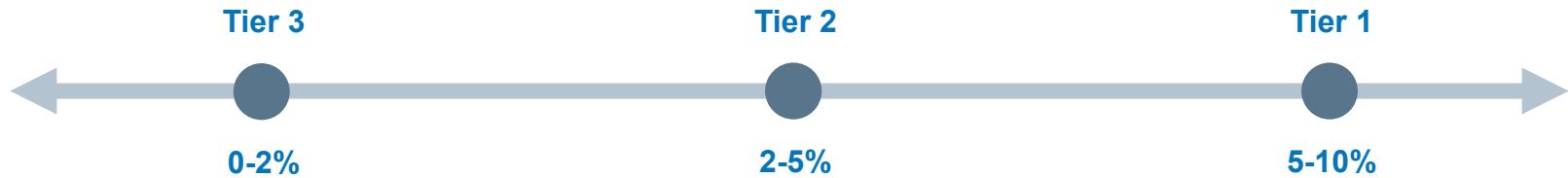
Example is for illustrative purposes only.

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**Our risk management guidelines ensure that portfolio characteristics remain in line with client expectations.**

### Individual Positions



### Total Portfolio

Guidelines	Range
Countries	20 – 50
Local Sovereign	0 – 100%
External Sovereign	0 – 100%
Corporate	0 – 50%
Sovereign Loans	0 – 10%
Currency	0 – 100%
Interest Rate Duration	1 – 8 years

Guidelines	Range
Spread Duration	0 – 6 years
Target Excess Return	200 – 300bps
Tracking Error	300 – 600bps
Target Volatility	4 – 8%
Turnover Range	30 – 100%
Benchmark Countries:	50 – 100%
Off-Benchmark Countries	0 – 50%

There are no guarantees regarding the achievement of the Strategy's investment objectives, target returns or measurements of other characteristics

FOR USE IN ONE-ON-ONE PRESENTATIONS ONLY



**Emerging Markets Debt Opportunities is a unique alpha-seeking strategy that seeks to outperform its benchmark with meaningfully lower levels of risk.**

## Persistent Advantages

### 1. Area of Coverage

Source ideas from the broadest possible opportunity set — 100+ countries

### 2. Approach to Research

Focus on countries poised for structural change

Achieve highly specific risk exposures and eliminate unintended bets

### 3. Access to Markets

Mitigate risk, reduce transaction costs and exploit price differentials available from local market access

## Full Spectrum of Opportunities



- Local Sovereigns
- External Sovereigns
- Corporates
- Loans

## Efficient Fit into Overall Portfolio

- Pure EMD exposure
- Lower drawdowns
- 4-8% volatility target

## Attractive Performance Target Profile

- 200-300 bps excess return
- 300-600 bps tracking error
- 0.5-1.0 Sharpe ratio

\*The Emerging Markets Debt Opportunities portfolio has a blended benchmark, comprised of 50% J.P. Morgan EMB (JEMB) Hard Currency 50% JEMB Local Currency 50-50. There are no guarantees regarding the achievement of the Strategy's investment objectives, target returns or measurements of other characteristics.



## Case Studies



## Summary

**South Africa is Africa's most industrialized country, but massive structural issues have caused growth to stagnate. We anticipate further deterioration.**

## Analysis

### Politics

- “Lowest passing grade” for newly elected ANC President Cyril Ramaphosa
- Corruption under former leader Jacob Zuma difficult to unwind
- Internal power dynamics, policy uncertainty and high unemployment further complicate matters

### Fiscal Policy

- Fiscal slippage and rising public debt
- Budgetary support for Eskom and FY2019 shortfalls stand to increase deficit and push debt-to-GDP ratio to ~60%
- Potential downgrade by Moody's to non-investment grade status

### Monetary Policy

- Free-floating currency
- Inflation at mid target range (3-6%)
- Dovish inflation expectations
- South African Reserve Bank one of the few credible institutions, but its independence is under attack from Zuma-faction of the ANC

### Trade Policy/External Accounts

- Account deficit has moderated in recent years, albeit due mostly to ZAR depreciation and lower oil prices
- Non-competitive export market and reliance on financial flows and commodity exports (gold and coal) increase vulnerability of external accounts

### Income Policy

- GDP per capita in decline for 12 years
- Misallocation of resources due to poorly designed “Black Economic Empowerment” framework and government involvement in mining
- Land reform plan (aka “Expropriation without Compensation”) emblematic of poor policy decisions

### Non-Financial Factors (ESG)

- *Environmental*  
Water shortages; high ecological footprint; severe mining damage
- *Social*  
Rampant inequality; strained labor relations; poor education
- *Governance*  
Numerous corruption scandals; high murder rates



## Summary

**New President Vlad Zelensky and his political party show great promise to implement meaningful reforms. We expect drastic economic improvement.**

## Analysis

### Politics

- Historically hampered by extremely low state capacity, corruption and state capture by oligarchic elites
- Zelensky's landslide win indicates continued IMF cooperation, anti-corruption efforts, judicial independence and other reforms
- Continued provocation from Russia threatens stability

### Trade Policy/External Accounts

- Moderate current account deficit at 3.5%; large good deficit expected to narrow
- Ongoing Nord Stream 2 pipeline issues
- Historically low foreign investment may increase in light of reforms
- Vast agricultural exports and free-trade agreement with EU remain positives

### Fiscal Policy

- Notable improvements under IMF program
- Budget deficit expected to narrow to 1.3%
- Debt-to-GDP ratio down from 90% (2014) to 60% (2019)
- New administration promises fiscal prudence and commitment to servicing debt

### Income Policy

- Gas subsidy removals remain challenging but also a condition of IMF support
- Low market prices an off-setting factor
- Land reform has potential to increase agricultural production across the country

### Monetary Policy

- 9% inflation exceeds central bank target of 5% +/- 2% but starting to decline
- Currency stabilized
- Two recent policy rate cuts
- Real rates still among highest in the world, near 8%

### Non-Financial Factors (ESG)

- Environmental*  
One of largest CO2-emissions per dollar of GDP; subsidies discourage efficient use of electricity and fossil fuels
- Social*  
High emigration; 25% of population living below poverty line; gender inequality
- Governance*  
Legacy of high corruption and oligarchical control; low quality of democracy



## Summary

**Peru is a well-managed, commodity-based economy. We expect the country to benefit from President Vizcarra's anti-corruption constitutional reform.**

## Analysis

### Politics

- Surge in presidential popularity after forcing congress to approve anti-corruption reform
- Accelerating plans for much-needed infrastructure improvements

### Fiscal Policy

- Prudent fiscal policy
- Fiscal deficit widened amid falling commodity prices
- Long-term deficit target of 1% of GDP vs. 2.3% target in 2019
- Gross public debt currently ~25% of GDP

### Monetary Policy

- Inflation currently 2.75%; target is 2% with 1% band
- Central bank willing to provide necessary stimulus

### Trade Policy/External Accounts

- Reasonable external accounts with small C/A deficit and trade surplus
- Open trade and investment stance
- Holds FTAs with numerous countries and trade unions
- Heavily dependent on gold and copper prices
- Importer of oil

### Income Policy

- Very high labor market informality
- Dollarization has increased steadily since 2007, from 56% to ~28% of GDP

### Non-Financial Factors (ESG)

- Environmental*  
Mining economically important but faces opposition from local communities due to environmental concerns
- Social*  
Weak political representation of indigenous groups (majority of population)
- Governance*  
Pervasive institutional corruption

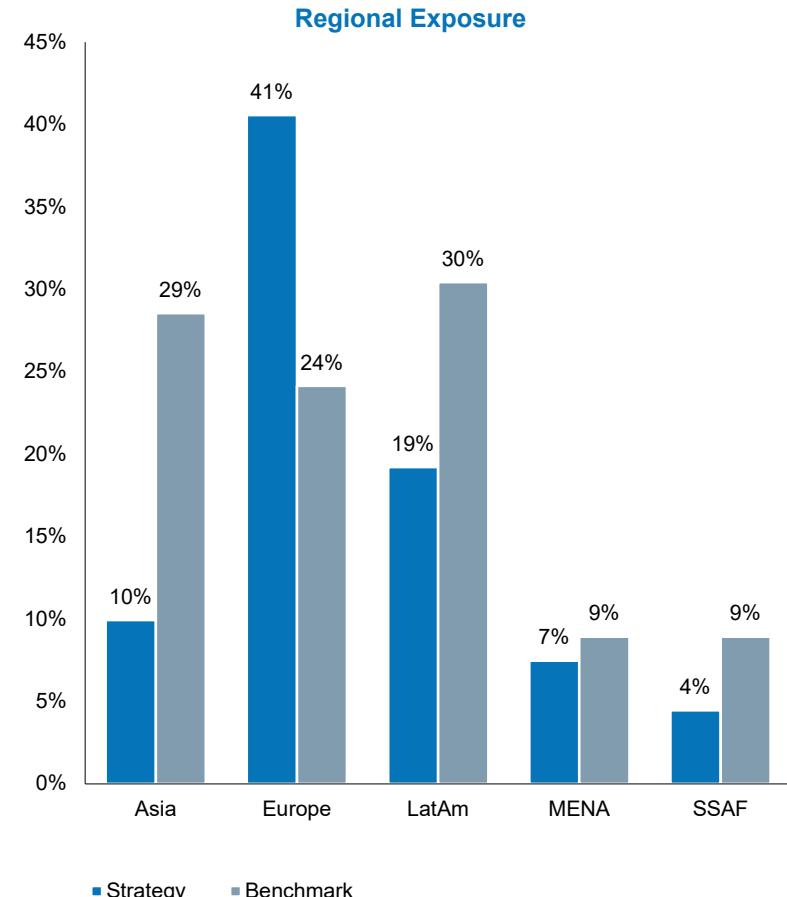
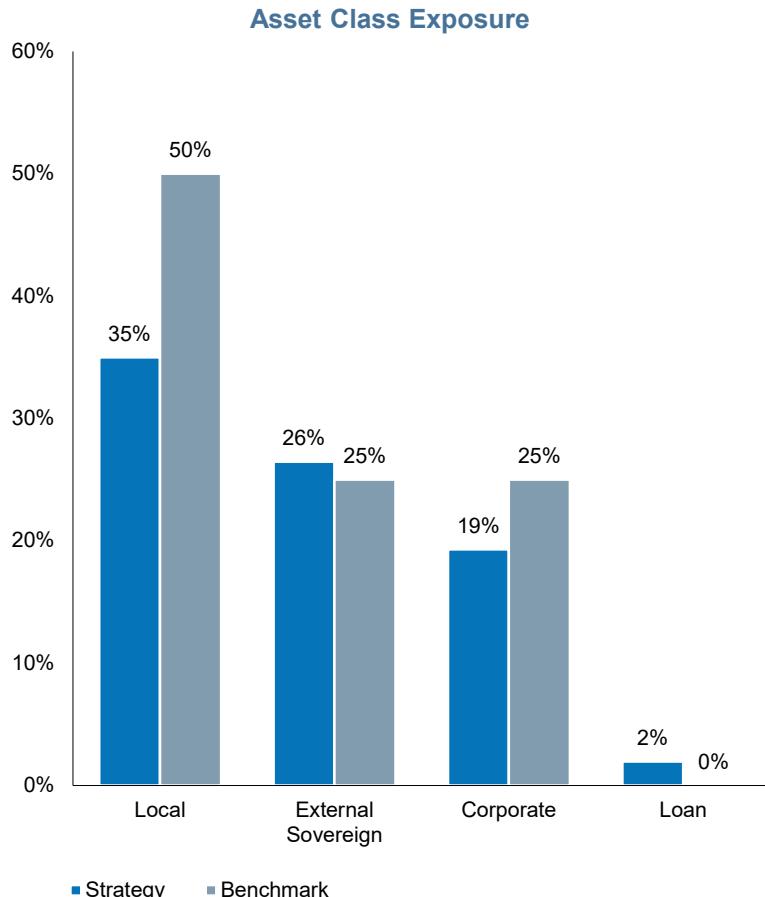


## Portfolio Characteristics and Results

# 37 | Asset Class and Regional Exposures



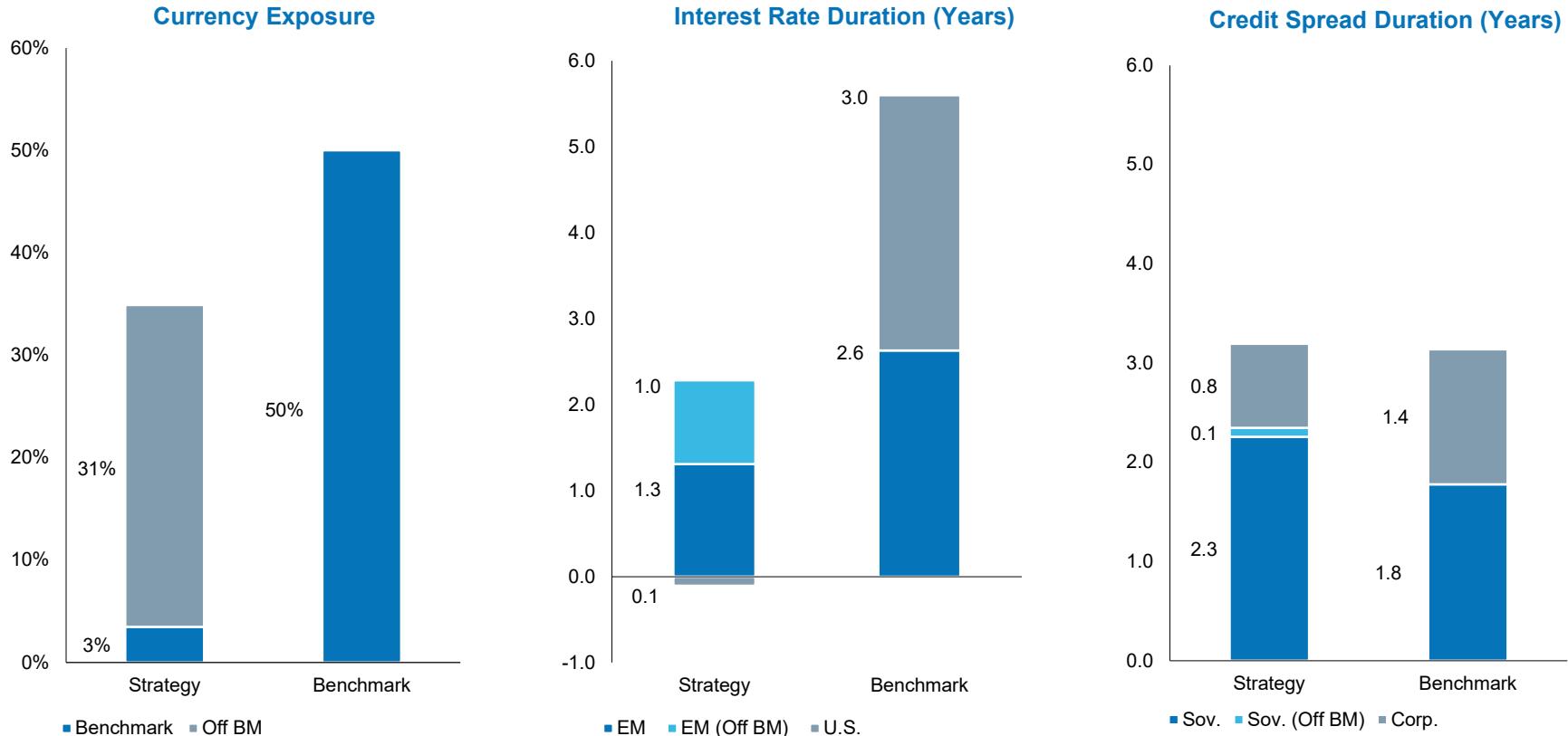
## Exposures as of March 31, 2020



**Past performance is not a reliable indicator of future results.** Source: Eaton Vance as of March 31, 2020. Portfolio profile subject to change due to active management. Portfolio Characteristics and Portfolio Composition data is based upon the total assets of a single Representative Account which is included in the Emerging Markets Debt Opportunities (Composite) for the periods shown. This account was chosen because it is unrestricted and fairly represents the overall style of the manager as described. The above information, including that attributed to the Representative Account, is supplemental to the Composites GIPS® presentation contained herein as an integral part of this material. Please refer to the Appendix for important additional information and disclosures.



## Exposures as of March 31, 2020

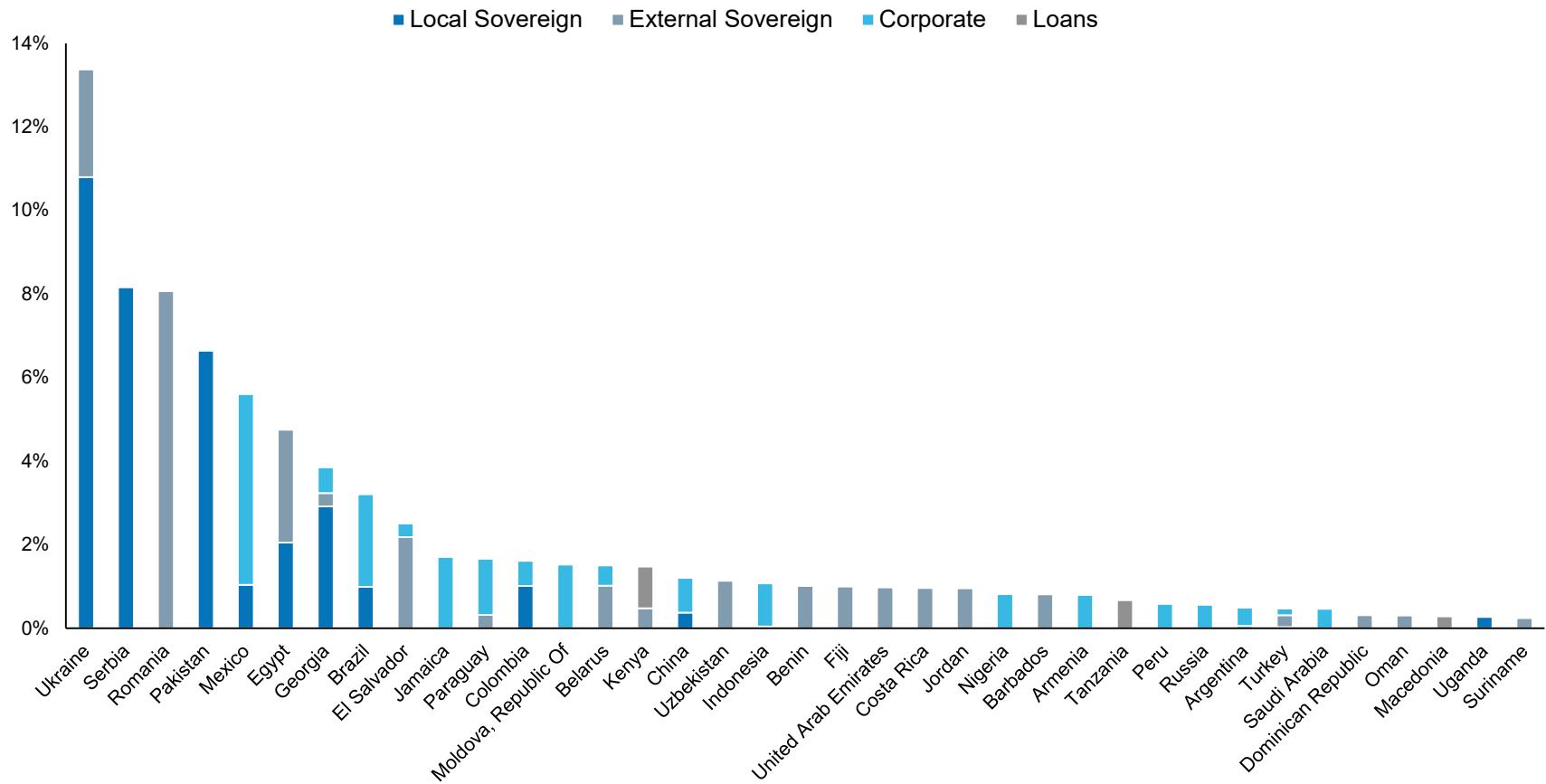


**Past performance is not a reliable indicator of future results.** Source: Eaton Vance as March 31, 2020. Portfolio profile subject to change due to active management. Portfolio Characteristics and Portfolio Composition data is based upon the total assets of a single Representative Account which is included in the Emerging Markets Debt Opportunities (Composite) for the periods shown. This account was chosen because it is unrestricted and fairly represents the overall style of the manager as described. The above information, including that attributed to the Representative Account, is supplemental to the Composites GIPS® presentation contained herein as an integral part of this material. Please refer to the Appendix for important additional information and disclosures.

## 39 | Asset Classes by Country



### Allocations as of March 31, 2020

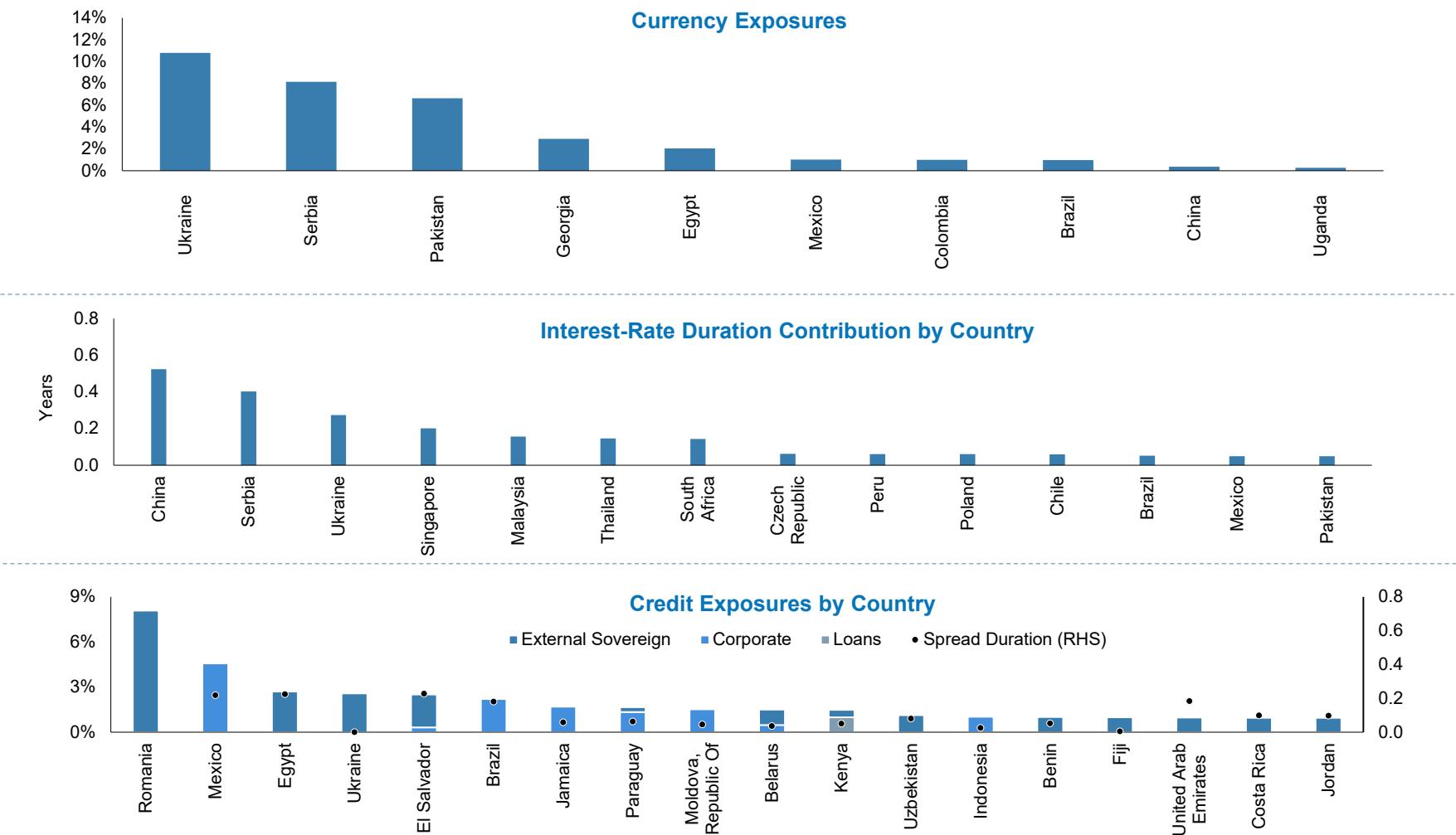


**Past performance is not a reliable indicator of future results.** Source: Eaton Vance as of March 31, 2020. Percent of total net assets. Excludes countries with less than 0.25% of exposure. Portfolio profile subject to change due to active management. Portfolio Characteristics and Portfolio Composition data is based upon the total assets of a single Representative Account which is included in the Emerging Markets Debt Opportunities (Composite) for the periods shown. This account was chosen because it is unrestricted and fairly represents the overall style of the manager as described. The above information, including that attributed to the Representative Account, is supplemental to the Composites GIPS® presentation contained herein as an integral part of this material. Please refer to the Appendix for important additional information and disclosures.

# 40 | Portfolio Positioning: Risk Factors by Country



## Exposures as of March 31, 2020

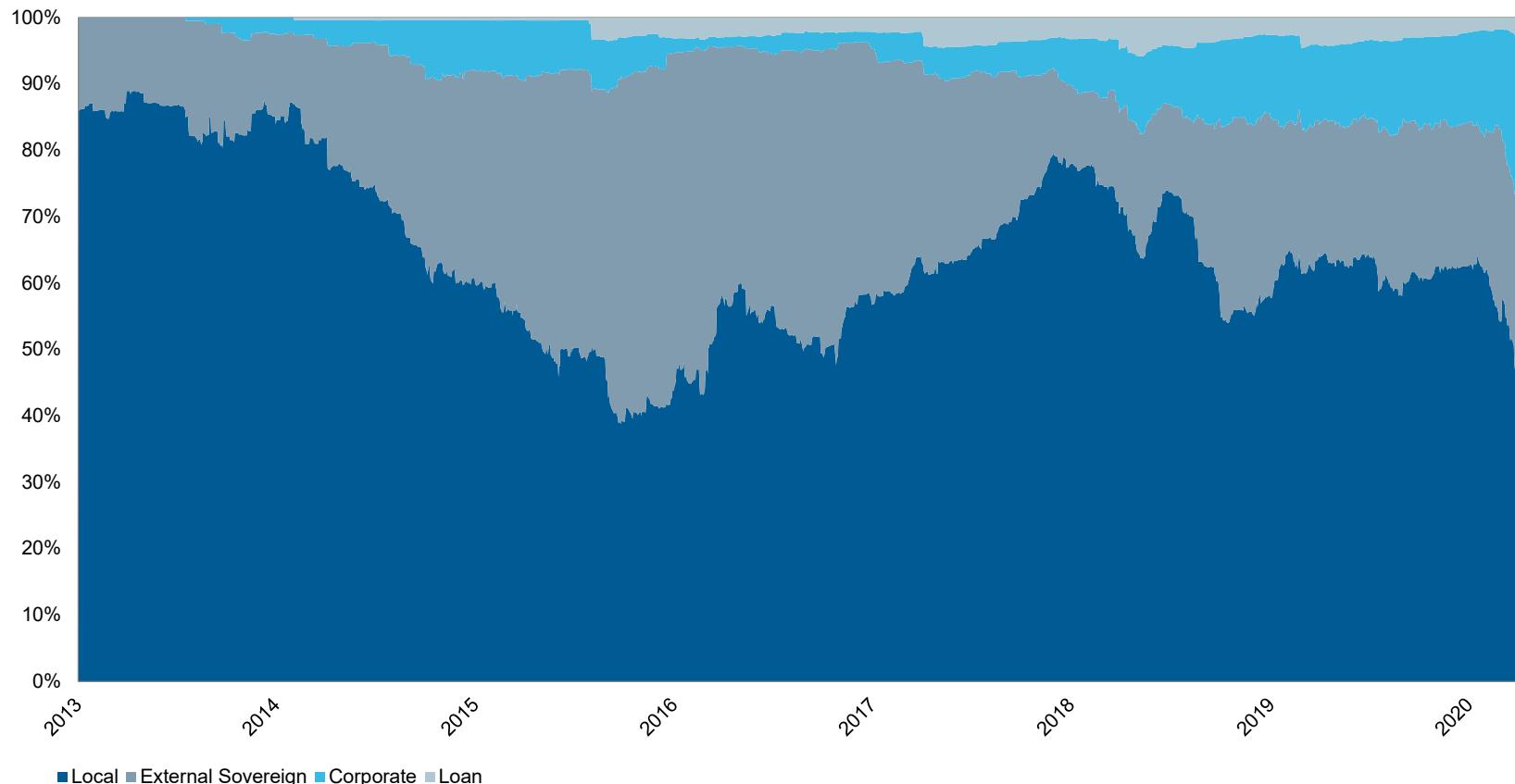


**Past performance is not a reliable indicator of future results.** Source: Eaton Vance as of March 31, 2020. Excludes countries with less than 0.25% of exposure and 0.05 years of duration. Portfolio profile subject to change due to active management. Portfolio Characteristics and Portfolio Composition data is based upon the total assets of a single Representative Account which is included in the Emerging Markets Debt Opportunities (Composite) for the periods shown. This account was chosen because it is unrestricted and fairly represents the overall style of the manager as described. The above information, including that attributed to the Representative Account, is supplemental to the Composites GIPS® presentation contained herein as an integral part of this material. Please refer to the Appendix for important additional information and disclosures.

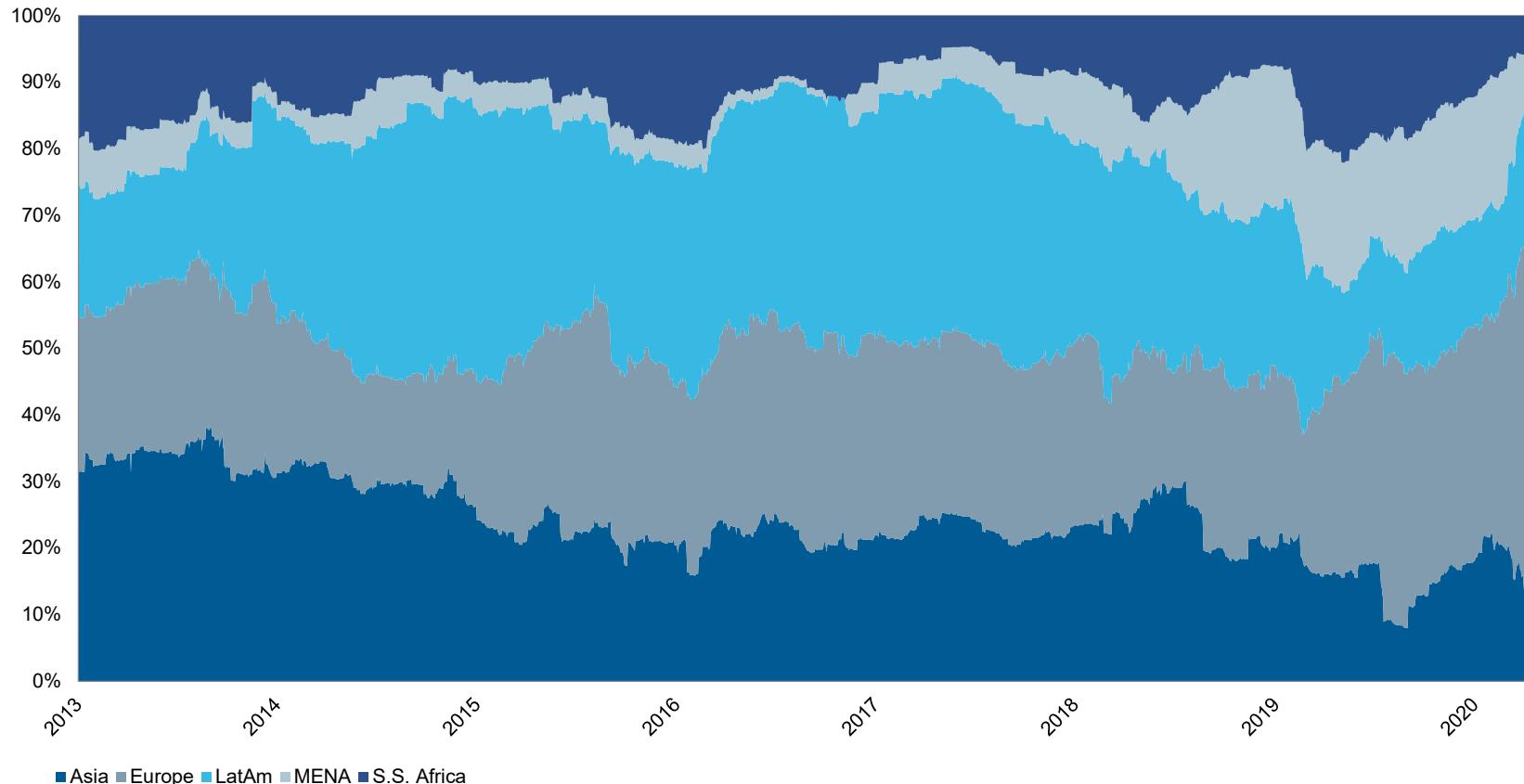


An Eaton Vance Company

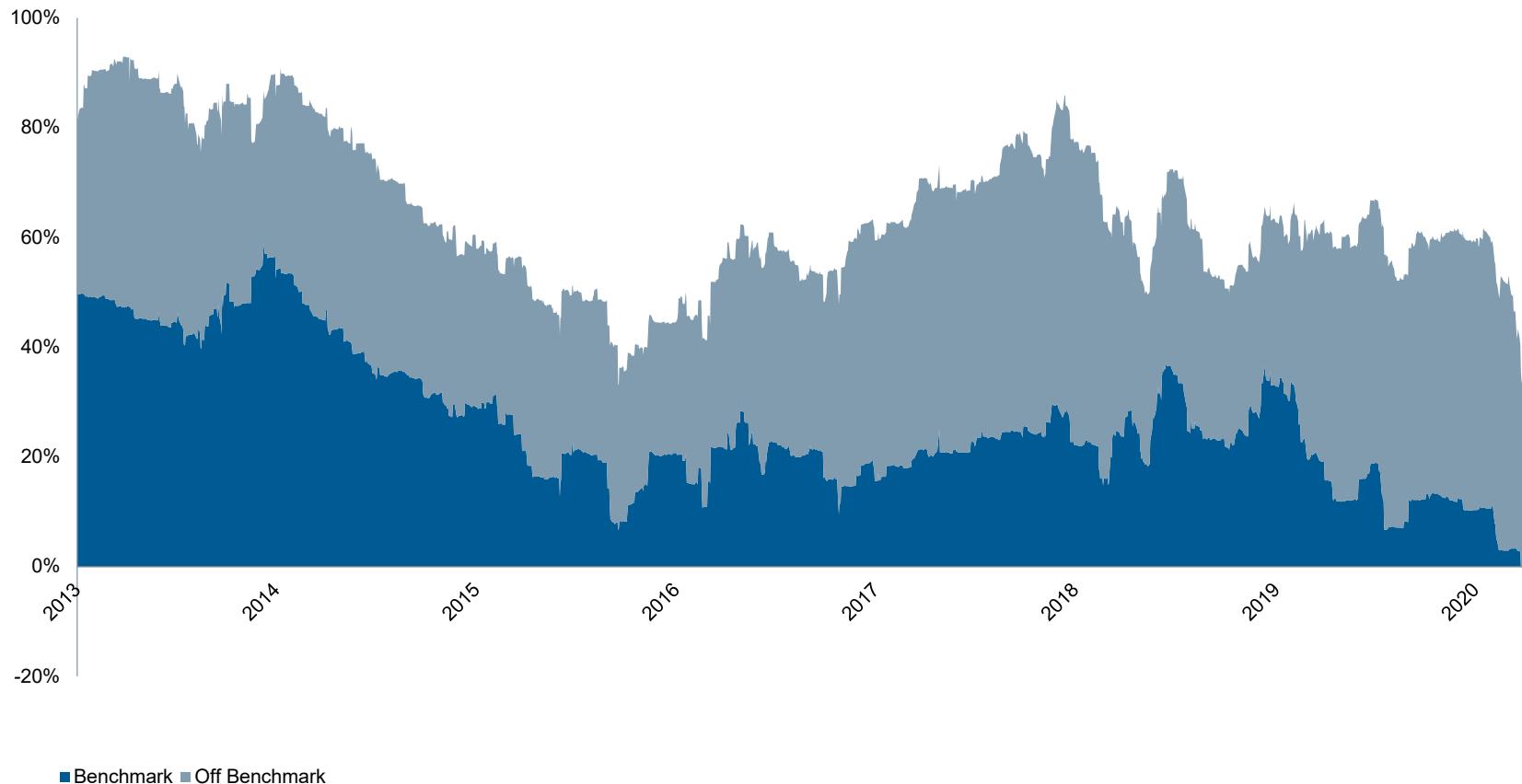
## Emerging Markets Debt Opportunities Strategy Historical Positioning & Performance



**Past performance is not a reliable indicator of future results.** As of March 31, 2020. Portfolio Characteristics are based upon the total assets of a single Representative Account which is included in the Emerging Markets Debt Opportunities (Composite) for the periods shown. This account was chosen because it is unrestricted and fairly represents the overall style of the manager as described. The above information, including that attributed to the Representative Account, is supplemental to the Composites GIPS® presentation contained herein as an integral part of this material. Please refer to the important additional information and disclosures contained herein.



**Past performance is not a reliable indicator of future results.** As of March 31, 2020. Portfolio Characteristics are based upon the total assets of a single Representative Account which is included in the Emerging Markets Debt Opportunities (Composite) for the periods shown. This account was chosen because it is unrestricted and fairly represents the overall style of the manager as described. The above information, including that attributed to the Representative Account, is supplemental to the Composites GIPS® presentation contained herein as an integral part of this material. Please refer to the important additional information and disclosures contained herein.



■ Benchmark ■ Off Benchmark

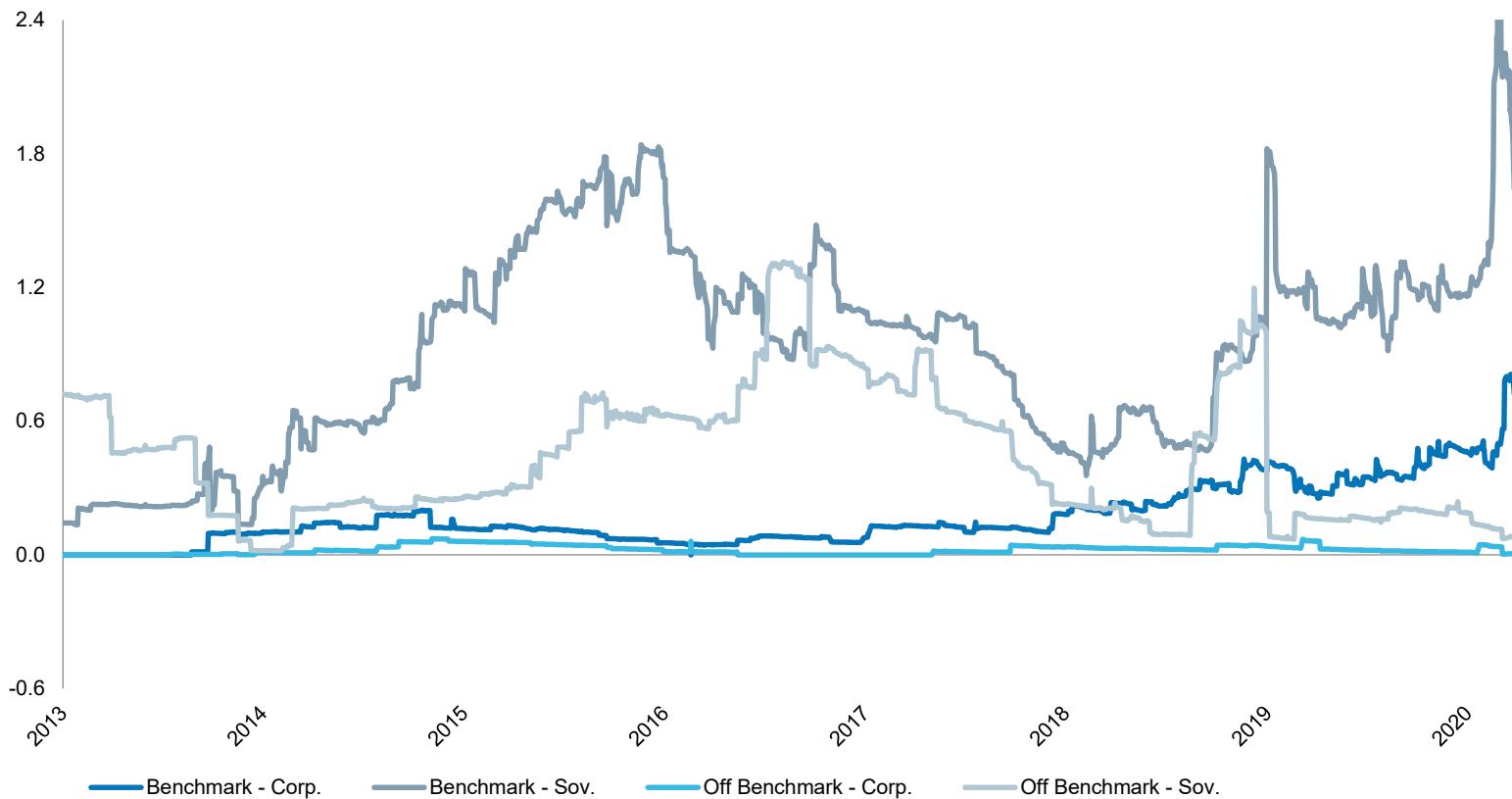
**Past performance is not a reliable indicator of future results.** As of March 31, 2020. Portfolio Characteristics are based upon the total assets of a single Representative Account which is included in the Emerging Markets Debt Opportunities (Composite) for the periods shown. This account was chosen because it is unrestricted and fairly represents the overall style of the manager as described. The above information, including that attributed to the Representative Account, is supplemental to the Composites GIPS® presentation contained herein as an integral part of this material. Please refer to the important additional information and disclosures contained herein.

## 45 | EMDO Positioning: Historical Interest Rate Duration (Years)



**Past performance is not a reliable indicator of future results.** As of March 31, 2020. Portfolio Characteristics are based upon the total assets of a single Representative Account which is included in the Emerging Markets Debt Opportunities (Composite) for the periods shown. This account was chosen because it is unrestricted and fairly represents the overall style of the manager as described. The above information, including that attributed to the Representative Account, is supplemental to the Composites GIPS® presentation contained herein as an integral part of this material. Please refer to the important additional information and disclosures contained herein.

## 46 | EMDO Positioning: Historical Credit Spread Duration (Years)



**Past performance is not a reliable indicator of future results.** As of March 31, 2020. Portfolio Characteristics are based upon the total assets of a single Representative Account which is included in the Emerging Markets Debt Opportunities (Composite) for the periods shown. This account was chosen because it is unrestricted and fairly represents the overall style of the manager as described. The above information, including that attributed to the Representative Account, is supplemental to the Composites GIPS® presentation contained herein as an integral part of this material. Please refer to the important additional information and disclosures contained herein.

## 47 | EMDO Investment Returns: Risk Factor / Region (Relative)



Risk Factor (bps)	2017	2018	2019	Trailing 1 Year	YTD	Q1 2020
EM Debt Opps	117	92	409	322	-106	-106
Currency	-160	14	446	862	471	471
Sovereign Credit	321	-44	17	101	84	84
Interest Rates	59	65	-86	-537	-508	-508
Corporate Credit	-96	57	31	-104	-153	-153
Other	-6	0	0	0	0	0

Region (bps)	2017	2018	2019	Trailing 1 Year	YTD	Q1 2020
EM Debt Opps	117	92	409	322	-106	-106
Asia	63	-84	-5	234	251	251
E. Europe	175	290	438	-51	-462	-462
Latin America	41	-421	-180	36	159	159
Middle East & Africa	34	293	453	516	176	176
Other	-196	14	-297	-415	-229	-229

**Past performance is not a reliable indicator of future results.** As of March 31, 2020. The information above is presented gross of fees and is based upon the total assets of a single Representative Account which is included in the Emerging Markets Debt Opportunities (Composite) for the periods shown. For net returns, please refer to slide 18. This account was chosen because it is unrestricted and fairly represents the overall style of the manager as described. The above information, including that attributed to the Representative Account, is supplemental to the Composites GIPS® presentation contained herein as an integral part of this material. Please refer to the important additional information and disclosures contained herein.



Risk Factor (bps)	2017	2018	2019	Trailing 1 Year	YTD	Q1 2020
EM Debt Opps	1,277	-348	1,740	-164	-1,466	-1,466
Currency	384	-203	748	400	-211	-211
Sovereign Credit	529	-162	227	-504	-609	-609
Interest Rates	364	25	598	273	-195	-195
Corporate Credit	5	-7	166	-333	-451	-451
Other	-6	0	0	0	0	0

Region (bps)	2017	2018	2019	Trailing 1 Year	YTD	Q1 2020
EM Debt Opps	1,277	-348	1,740	-164	-1,466	-1,466
Asia	298	-122	244	120	-31	-31
E. Europe	477	52	670	-97	-728	-728
Latin America	352	-536	153	-510	-555	-555
Middle East & Africa	171	225	568	193	-211	-211
Other	-21	33	105	130	60	60

**Past performance is not a reliable indicator of future results.** As of March 31, 2020. The information above is presented gross of fees and is based upon the total assets of a single Representative Account which is included in the Emerging Markets Debt Opportunities (Composite) for the periods shown. For net returns, please refer to slide 19. This account was chosen because it is unrestricted and fairly represents the overall style of the manager as described. The above information, including that attributed to the Representative Account, is supplemental to the Composites GIPS® presentation contained herein as an integral part of this material. Please refer to the important additional information and disclosures contained herein.



## Appendix



We continually monitor portfolio characteristics using a combination of proprietary and third-party systems.

## Assessments

Assessment	Methods
Risk Assessment	<ul style="list-style-type: none"> <li>Volatility</li> <li>Left-tail analysis</li> <li>Correlation</li> <li>Access considerations</li> </ul>
Return Assessment	<ul style="list-style-type: none"> <li>Return components</li> <li>Skew</li> <li>Timing</li> <li>Catalysts</li> </ul>
Risk Contribution	<ul style="list-style-type: none"> <li>Marginal contribution to risk level</li> <li>Target tracking error</li> </ul>
Expected Beta	<ul style="list-style-type: none"> <li>Marginal sensitivity to benchmark</li> <li>Limits on market risk exposure</li> </ul>
Downside Protection	<ul style="list-style-type: none"> <li>Horizon rate of return (“carry”)</li> </ul>

## Systems

Function	Systems
Trade Order Management	<ul style="list-style-type: none"> <li>Aladdin (BlackRock Solutions)</li> </ul>
Portfolio Management	<ul style="list-style-type: none"> <li>Aladdin</li> </ul>
Risk Management	<ul style="list-style-type: none"> <li>Aladdin</li> </ul>
Portfolio Analytics	<ul style="list-style-type: none"> <li>Aladdin</li> <li>Proprietary Database</li> <li>Proprietary Spreadsheets</li> </ul>
Prices Models/Systems	<ul style="list-style-type: none"> <li>Third-Party Vendor Pricing</li> <li>Bloomberg Valuation Tools</li> <li>Proprietary Models</li> </ul>
Cash Management	<ul style="list-style-type: none"> <li>Aladdin</li> <li>Proprietary Spreadsheets</li> </ul>
Reconciliations	<ul style="list-style-type: none"> <li>Aladdin</li> <li>Proprietary Database</li> <li>Proprietary Spreadsheets</li> </ul>



## Index

<b>Bloomberg Barclays Capital Global Aggregate</b>	The Bloomberg Barclays Capital Global Aggregate Index measures the performance of global investment grade fixed income securities.
<b>Bloomberg Barclays Capital Global Aggregate Ex USD</b>	The Bloomberg Barclays Capital Global Aggregate Ex USD Index measures the performance of global investment grade fixed income securities excluding U.S. Dollar denominated issues.
<b>Bloomberg Barclays Capital U.S. Intermediate Government</b>	The Bloomberg Barclays Capital U.S. Intermediate Government Index is an unmanaged index of U.S. government bonds with maturities from one year up to (but not including) 10 years.
<b>Bloomberg Barclays Capital U.S. Aggregate</b>	The Bloomberg Barclays Capital U.S. Aggregate Index is an unmanaged index of domestic investment-grade bonds, including corporate, government and mortgage-backed securities.
<b>ICE BofAML U.S. Treasury</b>	The ICE BofAML U.S. Treasury Index is an unmanaged index of U.S. Treasury securities.
<b>ICE BofAML U.S. High Yield</b>	The ICE BofAML U.S. High Yield Index is an unmanaged index of below-investment grade U.S. corporate bonds.
<b>J.P. Morgan Government Bond Index: Emerging Market (GBI-EM) Global Diversified</b>	The J.P. Morgan Government Bond Index: Emerging Market (GBI-EM) Global Diversified is an unmanaged index of local-currency bonds with maturities of more than one year issued by emerging markets governments. Inception date for index is 12/31/02.
<b>J.P. Morgan Emerging Market Bond Index (EMBI) Global Diversified</b>	The J.P. Morgan Emerging Market Bond Index (EMBI) Global Diversified is an unmanaged index of USD-denominated bonds with maturities of more than one year issued by emerging markets governments.
<b>J.P. Morgan Emerging Markets Bond Index Global (EMBIG)</b>	The J.P. Morgan Emerging Markets Bond Index Global (EMBIG) is an unmanaged index of USD-denominated bonds with maturities of more than one year issued by emerging markets governments.
<b>J.P. Morgan Corporate Emerging Market Bond Index (CEMBI) Broad Diversified</b>	The J.P. Morgan Corporate Emerging Market Bond Index (CEMBI) Broad Diversified is an unmanaged index of USD-denominated emerging market corporate bonds.
<b>J.P. Morgan Emerging Markets Bond Index Plus (EMBI+)</b>	The J.P. Morgan Emerging Market Bond Index (EMBI+) is a market-cap weighted index that measures USD-denominated Brady Bonds, Eurobonds, and traded loans issued by sovereign entities.
<b>J.P. Morgan GBI-Global ex U.S.</b>	The J.P. Morgan GBI-Global ex U.S. Index is an unmanaged index of foreign-denominated government bonds of a core group of developed countries outside the U.S.
<b>J.P. Morgan Next Generation Markets (NEXGEM)</b>	The J.P. Morgan Next Generation Markets Index measures USD-denominated bonds issued by governments in smaller, less liquid population of emerging market countries.

It is not possible to invest directly in an index. Unless otherwise stated, index returns do not reflect the effect of any applicable sales charges, commissions, expenses, taxes or leverage, as applicable. Historical performance of the index illustrates market trends and does not represent the past or future performance of the fund. ICE® BofAML® indices are not for redistribution or other uses; provided "as is", without warranties, and with no liability. Eaton Vance has prepared this report and ICE Data Indices, LLC does not endorse it, or guarantee, review, or endorse Eaton Vance's products. BofAML® is a licensed registered trademark of Bank of America Corporation in the United States and other countries. Information has been obtained from sources believed to be reliable but J.P. Morgan does not warrant its completeness or accuracy. The Index is used with permission. The Index may not be copied, used, or distributed without J.P. Morgan's prior written approval. Copyright 2020, J.P. Morgan Chase & Co. All rights reserved.



## Eaton Vance Management

### Organization

Eaton Vance Management (EVM or the Company) is an SEC registered investment adviser with its headquarters located in Boston, Massachusetts. Since 1924, the Company has provided a full range of investment products to corporations, public agencies, labor unions, hospitals, charitable and educational organizations, individuals and various qualified investment plans. It supplies investment advisory services through several SEC registered investment advisers and a trust company – EVM, Boston Management and Research (BMR), Eaton Vance Investment Counsel (EVIC), Eaton Vance Trust Company (EVTC), Eaton Vance Management International Limited (EVMI), Eaton Vance Advisers International Ltd (EVAIL) and Eaton Vance Global Advisors Limited (EVGA). The Company is defined as all seven entities operating under the Eaton Vance brand. Effective May 1, 2011, EVM's Real Estate Investment Group, a constituent of EVM, is operating as a separate division of EVM, and its assets are no longer represented in EVM's total assets under management.

### Performance Returns

Unless otherwise stated, composite returns and market values are reported in U.S. dollars. All performance returns are presented as total returns, which include the reinvestment of all income and distributions. Returns for periods less than one year are not annualized. Information regarding policies for valuing portfolios, calculating performance and preparing compliant presentations is available upon request.

### Composite Dispersion

Annual internal return dispersion is represented by the highest and lowest returns of all portfolios within a composite. Internal dispersion is shown only for composites that held at least six accounts for the full year. Internal dispersion is shown as not applicable, "N/A", for composites that held five or fewer accounts for the full year. External composite and benchmark dispersion are shown to demonstrate the variability of returns over time, and is represented by the three-year ex-post standard deviation of monthly returns. External composite and benchmark dispersion are shown as not applicable, "N/A", for composites with less than 3 years of monthly history, as of the most current quarter-end. External dispersion is not shown for composite inception through December 2010, as it is not required for periods prior to 2011.

### Other Matters

A complete list of all composites maintained by EVM with descriptions and related performance results for each is available upon request. To receive a complete list and description of the Company's composites and/or a presentation that adheres to the GIPS®, contact the Performance Department at (800) 225-6265 ext. 26733 or write to Eaton Vance Management, Two International Place, Boston, MA 02110, Attention GIPS Performance Department, 3rd floor.



## Eaton Vance Management Emerging Markets Debt Opportunities Composite (MF 204)

### Composite Definition

The investment objective of this style is to seek total return by investing at least 80% of total net assets in (1) fixed-income securities denominated in currencies of emerging market countries, (2) income instruments issued by emerging-market entities or sovereign nations, and/or (3) derivative instruments denominated in, or based on, the currencies, interest rates or issues of emerging-market countries. A portfolio's short investment exposures to emerging markets will not exceed 20% of net assets, and, likewise, its short exposures to the EUR will not exceed 30%. Portfolios expect to hold U.S. Treasury, government agency and agency mortgage-backed securities (and derivatives thereon) to use as collateral for its derivative positions and to help manage duration. Portfolios expect to achieve certain exposures primarily through derivative transactions, including forward foreign-currency exchange contracts; futures on securities, indexes, currencies, swaps and other investments; options; and interest-rate swaps, cross-currency swaps, total return swaps and credit-default swaps, which may create economic leverage in a portfolio. A portfolio's use of derivatives is expected to be extensive. An account is included in the composite at the beginning of the first full month that the portfolio manager deems it fully invested, and a closed account is included through the last full month under management. No selective periods of performance have been used.

### Benchmark

The Composite's benchmark is J.P. Morgan EMB (JEMB) Hard Currency/Local currency 50-50. The index is composed of the following: 50% J.P. Morgan Government Bond Index - Emerging Market Global Diversified, 25% J.P. Morgan Emerging Market Bond Index Global Diversified, 25% J.P. Morgan Corporate Emerging Markets Bond Index Broad Diversified. JEMB is an unmanaged index of local-currency bonds with maturities of more than one year issued by governments of emerging markets. EMBI is an unmanaged index of USD-denominated bonds with maturities of more than one year issued by governments of emerging markets. CEMBI is an unmanaged index of USD-denominated emerging-market corporate bonds.

### Gross and Net Returns

Composite gross returns are after transaction costs, any foreign withholding taxes and other direct expenses, but before management fees, custody charges and other indirect expenses. Composite net returns are calculated by deducting from the gross performance returns the maximum management fee, 0.60%, charged by EVM for a prospective client as set forth in the fee schedule of this style. The complete fee schedule is as follows: 0.60% on the first \$100 Million; 0.55% on the next \$100 Million; 0.50% on the Balance.

### Notes to Composite

The creation date of this composite is April 2013, and the inception date is April 2013. Effective February 24, 2014, the Composite's name changed from Institutional Emerging Markets Local Debt Composite. There was no change to investment objective or style. Effective June 30, 2014, the maximum management fee charged by EVM for a separately managed, institutional account of this style changed, retroactively, from 0.60%. Effective September 3, 2015, the Composite's name changed from Institutional Emerging Markets Debt Fund. There was no change to investment objective or style. Clients or prospective clients should not assume that they will have an investment experience similar to that indicated by past performance results, as shown on the Schedule.



## Schedule of Performance Returns

Period	Gross Returns	Net Returns	Benchmark Returns	Number of Accounts	Internal Dispersion High	Internal Dispersion Low	Composite Assets \$'000)	Total Firm Assets \$'000)	Composite Assets as % of Firm Assets	3-yr External Dispersion Composite Benchmark
2013^	-1.48	-1.96	-5.58	≤ 5	NA	NA	14,755	172,036,715	0.01	NA
2014	1.18	0.53	0.14	≤ 5	NA	NA	48,246	164,420,664	0.03	NA
2015	-3.00	-3.63	-7.11	≤ 5	NA	NA	46,421	156,199,594	0.03	NA
2016	11.84	11.13	10.06	≤ 5	NA	NA	65,911	166,832,375	0.04	6.20
2017	14.00	13.27	12.15	≤ 5	NA	NA	89,394	193,976,437	0.05	5.73
2018	-3.44	-4.06	-4.50	≤ 5	NA	NA	127,059	192,823,274	0.07	5.40
2019	19.33	18.63	13.84	≤ 5	NA	NA	264,688	214,941,744	0.12	4.72

### Annualized Returns For Periods Ending December 31, 2019

	YTD	1 Year	3 Year	5 Year	Since Inception*
<b>Composite gross</b>	19.33	19.33	9.52	7.34	5.34
<b>Composite net</b>	18.63	18.63	8.83	6.66	4.67
<b>Benchmark</b>	13.84	13.84	6.83	4.50	2.46

\*Inception Date: 04/01/2013

^Represents data from 03/31/2013 through 12/31/2013

Eaton Vance Management (the Firm) claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS® standards. The Firm has been independently verified for the period 1 January, 1996 through 31 December 2018. A copy of the verification report is available upon request. Verification assesses whether (1) the Firm has complied with all composite construction requirements of the GIPS® standards on a firm-wide basis and (2) the Firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS® standards. Verification does not ensure the accuracy of any specific composite presentation.

Please see Notes to Schedule accompanying these returns



## Eaton Vance Management

### Emerging Markets Local Income Composite (MF 156)

#### Composite Definition

The investment objective of this style is to seek total return by investing at least 80% of total net assets in (1) securities denominated in currencies of emerging market countries, (2) fixed-income instruments issued by emerging-market entities or sovereigns, and/or (3) derivative instruments denominated in, or based on, the currencies, interest rates of issues of emerging-market countries. Derivatives, such as currency forwards, sovereign-credit default swaps, other swaps, options and futures contracts may be used to, among other things, enhance returns, as a substitute for purchasing or selling securities or to protect against price decline. Assets may also be invested in U.S. Government securities.

An account is included in the composite at the beginning of the first full month that the portfolio manager deems it fully invested, and a closed account is included through the last full month under management. No selective periods of performance have been used.

#### Benchmark

The composite's benchmark is the J.P. Morgan Government Bond Index - Emerging Markets Global Diversified. It is an unmanaged index of local-currency bonds with maturities of more than one year issued by governments in emerging markets.

#### Gross and Net Returns

Composite gross returns are after transaction costs, any foreign withholding taxes and other direct expenses, but before management fees, custody charges and other indirect expenses. Composite net returns are calculated by deducting from the gross performance returns the maximum management fee, 0.57%, charged by EVM for a prospective client as set forth in the fee schedule of this style. The complete fee schedule is as follows: 0.57% on the first \$100 Million; 0.54% on the next \$100 Million; 0.50 % on the balance.

#### Notes to Composite

The creation date of this composite is August 2007, and the inception date is July 2007. Clients or prospective clients should not assume that they will have an investment experience similar to that indicated by past performance results, as shown on the Schedule.



## Schedule of Performance Returns

Period	Gross Returns	Net Returns	Benchmark Returns	Number of Accounts	Internal Dispersion High	Internal Dispersion Low	Composite Assets \$'000)	Total Firm Assets \$'000)	Composite Assets as % of Firm Assets	3-yr External Dispersion Composite	3-yr External Dispersion Benchmark
2010	15.23	14.55	15.68	≤ 5	NA	NA	360,960	150,907,196	0.24		
2011	-2.51	-3.09	-1.75	≤ 5	NA	NA	555,883	142,155,060	0.39	13.62	13.19
2012	18.11	17.41	16.76	≤ 5	NA	NA	631,419	152,207,484	0.41	13.29	12.42
2013	-8.82	-9.37	-8.98	≤ 5	NA	NA	455,997	172,036,715	0.27	13.70	12.61
2014	-2.83	-3.41	-5.72	≤ 5	NA	NA	293,006	164,420,664	0.18	12.03	11.77
2015	-11.57	-12.10	-14.92	≤ 5	NA	NA	223,955	156,199,594	0.14	10.42	10.35
2016	13.73	13.06	9.94	≤ 5	NA	NA	274,098	166,832,375	0.16	11.86	11.97
2017	17.54	16.85	15.21	≤ 5	NA	NA	653,003	193,976,437	0.34	10.68	10.87
2018	-7.30	-7.86	-6.21	≤ 5	NA	NA	736,501	192,823,274	0.38	10.78	11.09
2019	24.13	23.44	13.47	≤ 5	NA	NA	1,266,825	214,941,744	0.59	8.96	9.20

### Annualized Returns For Periods Ending December 31, 2019

	YTD	1 Year	3 Year	5 Year	7 Year	10 Year	Since Inception*
<b>Composite gross</b>	24.13	24.13	10.59	6.35	2.70	4.81	6.07
<b>Composite net</b>	23.44	23.44	9.95	5.72	2.10	4.19	5.44
<b>Benchmark</b>	13.47	13.47	7.03	2.78	-0.23	2.71	4.04

\*Inception date: July 1, 2007

Eaton Vance Management (the Firm) claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS® standards. The Firm has been independently verified for the period January 1, 1996 through December 31, 2018. A copy of the verification report is available upon request. Verification assesses whether (1) the Firm has complied with all composite construction requirements of the GIPS® standards on a firm-wide basis and (2) the Firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS® standards. Verification does not ensure the accuracy of any specific composite presentation.

Please see Notes to Schedule accompanying these returns.



## Eaton Vance Management

### Emerging Markets Debt Hard Currency Composite (SA 183)

#### Composite Definition

The investment objective of this style is to seek total return. Portfolios seek to achieve the objective by investing in debt securities issued by emerging market entities, sovereign nations, and/or quasi-sovereign entities. This external debt will be denominated only in USD or EUR currencies. An account is included in the composite at the beginning of the fourth full month under management, and a closed account is included through the last full month under management. No selective periods of performance have been used.

#### Benchmark

The composite's benchmark is the J.P. Morgan Emerging-Markets Bond Index - Global Diversified. It tracks total returns for traded external debt instruments in emerging markets and limits the weights of countries with larger debt stocks by including only a specified portion of these countries' eligible current face amounts of debt outstanding.

#### Gross and Net Returns

Composite gross returns are after transaction costs, any foreign withholding taxes and other direct expenses, but before management fees, custody charges and other indirect expenses. Composite net returns are calculated by deducting from the gross performance returns the maximum management fee, 0.55%, charged by EVM for a prospective client as set forth in the fee schedule of this style. The complete fee schedule is as follows: 0.55% on the first \$100 Million; 0.50% on the balance.

#### Notes to Composite

The creation date of this composite is September 2015, and the inception date is September 2015. Effective October 2017, the Composite's name changed from Emerging Markets External Debt Composite. There was no change in investment objective or style. Clients or prospective clients should not assume that they will have an investment experience similar to that indicated by past performance results, as shown on the Schedule.



## Schedule of Performance Returns

Period	Gross Returns	Net Returns	Benchmark Returns	Number of Accounts	Internal Dispersion		Composite Assets \$ (000)	Total Firm Assets \$ (000)	Composite Assets as % of Firm Assets	3-yr External Dispersion	
					High	Low				Composite	Benchmark
2015^	1.27	1.12	-0.05	≤ 5	NA	NA	61,160	156,199,594	0.04	NA	NA
2016	12.54	12.04	10.15	≤ 5	NA	NA	68,096	166,832,375	0.04	NA	NA
2017	12.35	11.85	10.26	≤ 5	NA	NA	96,688	193,976,437	0.05	NA	NA
2018	-1.41	-1.86	-4.26	≤ 5	NA	NA	106,673	192,823,274	0.06	4.29	5.46
2019	13.91	13.30	15.04	≤ 5	NA	NA	117,602	214,941,744	0.05	4.77	4.85

### Annualized Returns for Periods Ending December 31, 2019

	YTD	1 Year	3 Year	Since Inception*
<b>Composite gross</b>	13.91	13.91	8.06	8.75
<b>Composite net</b>	13.30	13.30	7.54	8.23
<b>Benchmark</b>	15.04	15.04	6.69	6.93

\*\* Inception Date: September 1, 2015

^ Represents data from August 31, 2015 through December 31, 2015

Eaton Vance Management (the Firm) claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS® standards. The Firm has been independently verified for the period January 1, 1996 through December 31, 2018. A copy of the verification report is available upon request. Verification assesses whether (1) the Firm has complied with all composite construction requirements of the GIPS® standards on a firm-wide basis and (2) the Firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS® standards. Verification does not ensure the accuracy of any specific composite presentation.

Please see Notes to Schedule accompanying these returns



## Eaton Vance Management Emerging Markets Debt Hard Currency Composite (SA 183)

### Composite Definition

The investment objective of this style is total return, consisting of high current income plus an opportunity for capital appreciation. Portfolios seek to achieve the objective by investing primarily in below-investment grade bonds issued by companies in emerging markets that are denominated in U.S. dollars (or other Developed Market currencies). The strategy may also invest in securities denominated in local emerging market currencies. The composite will be managed in a concentrated manner, can invest in investment grade securities and have a maximum of 10% exposure to equities. The strategy will use derivatives to eliminate certain risk factors, for portfolio management or as a way to gain exposure to certain assets. An account is included in the composite at the beginning of the first full month under management, and closed accounts are included through the last full month under management. No selective periods of performance have been used.

### Benchmark

The composite's benchmark is the ICE BofA Diversified High Yield US\$ Emerging Markets Corporate Plus Index (EMLH). This index is an unmanaged index of U.S. dollar-denominated bonds issued by non-sovereign emerging markets issuers that are rated below investment grade and issued in the major domestic or eurobond markets.

### Gross and Net Returns

Composite gross returns are after transaction costs, any foreign withholding taxes and other direct expenses, but before management fees, custody charges and other indirect expenses. Composite net returns are calculated by deducting from the gross performance returns the maximum management fee, 0.50%, charged by EVM for a prospective client as set forth in the fee schedule of this style. The complete fee schedule is as follows: 0.50% on all assets.

### Notes to Composite

The creation date of this composite is February 2019, and the inception date is April 2018. Clients or prospective clients should not assume that they will have an investment experience similar to that indicated by past performance results, as shown on the Schedule.



## Schedule of Performance Returns

Period	Gross Returns	Net Returns	Benchmark Returns	Number of Accounts	Internal Dispersion		Composite Assets \$(000)	Total Firm Assets \$(000)	Composite Assets as % of Firm Assets	3-yr External Dispersion	Composite Benchmark
					High	Low					
2018^	-0.70	-1.07	-2.53	≤ 5	NA	NA	47,597	192,823,274	0.02	NA	NA
2019	15.11	14.54	12.98	≤ 5	NA	NA	54,774	214,941,744	0.03	NA	NA

### Annualized Returns for Periods Ending December 31, 2019

	YTD	1 Year	Since Inception*
<b>Composite gross</b>	15.11	15.11	7.94
<b>Composite net</b>	14.54	14.54	7.40
<b>Benchmark</b>	12.98	12.98	5.66

\*\* Inception Date: April 1, 2018

^ Represents data from March 31, 2018 through December 31, 2018

Eaton Vance Management (the Firm) claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS® standards. The Firm has been independently verified for the period January 1, 1996 through December 31, 2018. A copy of the verification report is available upon request. Verification assesses whether (1) the Firm has complied with all composite construction requirements of the GIPS® standards on a firm-wide basis and (2) the Firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS® standards. Verification does not ensure the accuracy of any specific composite presentation.

**Please see Notes to Schedule accompanying these returns**



This presentation has been prepared on the basis of publicly available information, internally developed data and other third party sources believed to be reliable. However, no assurances are provided regarding the reliability of such information and Eaton Vance has not sought to independently verify information taken from public and third party sources. The data and information presented is for informational and illustrative purposes only. This material does not constitute investment advice and should not be viewed as a current or past recommendation or a solicitation of an offer to buy or sell any particular securities or to adopt any investment strategy. Any investment views and market opinions/analyses expressed constitute judgments as of the date of this presentation and are subject to change at any time without notice. Any investment views and market opinions/analyses expressed may not reflect those of Eaton Vance as a whole, and different views may be expressed based on different investment styles, objectives, views or philosophies. Each investor's portfolio is individually managed and may differ significantly from the information discussed in terms of portfolio holdings, characteristics and performance. It should not be assumed that any investments in securities, companies, sectors or markets described were or will be profitable. It should not be assumed that any investor will have an investment experience similar to any returns shown or to any previous or existing investor. There are no guarantees concerning the achievement of investment objectives, target returns, allocations or measurements such as alpha, tracking error, stock weightings and information ratios. The use of tools cannot guarantee performance.

Investment results and characteristics, including holdings, shown are supplemental to the fully compliant GIPS® presentation for their respective composite contained herein. Investment results for the composites include all fully discretionary, fee paying accounts managed and eligible for inclusion in the composites for the periods shown and are supplemental to each composite's GIPS® presentation contained herein. Composite performance during certain periods reflects the strong stock market performance of stocks held during those periods. This performance is not typical and may not be repeated. Gross returns are calculated in U.S. dollars and are after transaction costs, any foreign withholding taxes and other direct expenses, but before management fees, custody charges and other indirect expenses and include the reinvestment of distributions. Such fees and expenses would reduce the returns shown.

EVM's schedule of fees is described in Form ADV Part 2A which is available upon request. For a separately managed Emerging Markets Debt Opportunities account in this style with a value of \$50,000,000 the investment advisory fees would be 0.65% per annum. An account growing at an annual rate of 10% for the period shown and subject to such fees would produce a 9.35% return. The Composite includes an investment company advised by EVM whose holdings may differ significantly from that of a separately managed account. The returns experienced by a particular client, including a separately managed account, will be different from those included in this presentation.

Composite and Representative Account portfolio characteristics, including economic exposures, holdings, sectors and regions are based upon the total assets of such Composite or Representative Account for the period identified. There is no assurance that any portfolio characteristics, holdings, sectors or securities mentioned are currently held in a client's portfolio or will remain in an account's portfolio at the time you receive this report or that securities have not been sold or repurchased. It should not be assumed that any of the securities were or will be profitable, or that any recommendations in the future will be profitable or will equal the performance of the securities/sectors mentioned. Actual portfolio holdings will vary for each client, and there is no guarantee that a particular client's account will hold any, or all, of the securities/sectors mentioned. The Composite and Representative Account are not rated by an independent credit agency. Credit quality ratings are based on Moody's, S&P or Fitch, as applicable. Credit ratings are based largely on the rating agency's investment analysis at the time of the rating and the rating assigned to any particular security is not necessarily a reflection of the issuer's current financial condition. The rating assigned to a security by a rating agency does not necessarily reflect its assessment of the volatility of a security's market value or of the liquidity of an investment in the security. If securities are rated differently by the rating agencies, the higher rating is applied.

This material may contain statements that are not historical facts, referred to as forward-looking statements. Future results may differ significantly from those stated in forward-looking statements, depending on factors such as changes in securities or financial markets or general economic conditions.

**Investing entails risks and there can be no assurance that Eaton Vance (and its affiliates) will achieve profits or avoid incurring losses. Past performance does not predict future results.**



**E|V|M**

An Eaton Vance Company

**Thank you.**

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877-341-9247

[eatonvance.com](http://eatonvance.com)

6859 | 4.20.20

## State of Connecticut Retirement Plans and Trust Funds

Payden Emerging Markets Debt Strategy

June 10, 2020



## CONTENTS

- I Firm and Investment Team**
- II Investment Process**
- III Portfolio and Performance**
- IV EMD Themes**
- Appendix**
  - Payden ESG Approach
  - Biographies



## I Firm and Investment Team



# State of Connecticut Retirement Plans & Trust Funds Relationship Overview

## Ten+ Year Relationship History

- **May 2009 relationship inception with Liquidity Fund Mandate**
  - Payden responded to competitive RFP and was selected
  - Initially \$75 million, expanded to \$560 million
  - Portfolio wound down in May 2019 due to shift to longer core strategy
- **August 2016 Emerging Markets Debt Blend Mandate inception**
  - Payden responded to competitive RFP and was selected
  - Initially \$500 million, expanded to over \$1 billion
  - Benchmark 50/50 JP Morgan EMBI Global Diversified Index / GBI-EM Global Diversified Index

## Emerging Markets Debt Mandate

- Payden **a pioneer in the asset class**, as one of the first EMD managers
- **Consistency and longevity of team**, led by Kristin Ceva for over 20 years
- Payden utilizes **active portfolio management** within the emerging markets debt and currency universes, including exposure to U.S. dollar-denominated and local currency debt, and sovereign and corporate bonds

## Emerging Market Debt Investment Results As of May 31, 2020

	YTD 2020	Trailing 1 Year	Trailing 3 Year	Since Inception
<b>State of CT Portfolio (gross)</b>	<b>-8.01%</b>	<b>1.34%</b>	<b>2.02%</b>	<b>4.89%</b>
Benchmark*	-6.70%	1.22%	1.75%	4.25%
<i>Alpha</i>	<i>-1.31%</i>	<i>0.12%</i>	<i>0.27%</i>	<i>0.64%</i>

\*Benchmark 50/50 JP Morgan EMBI Global Diversified / GBI-EM Global Diversified  
 Returns for periods over one year are annualized and unaudited as of May 31, 2020  
 Inception date: 12/1/2016



## OUR FIRM

### ESTABLISHED IN 1983

Los Angeles-based, offices in Boston, London, Milan

### OVER \$114 BILLION AUM

A fully-resourced – yet flexible – firm

### ONE GOVERNANCE CENTER

Clients have direct access to business owners

### 100% EMPLOYEE OWNED

## OUR CULTURE

### GLOBAL PERSPECTIVE ON INVESTING

Regardless of benchmark

### COLLABORATIVE APPROACH

Sharing best ideas, constructive debate

### EXCEPTIONAL RETENTION

of talented people and clients

### ALIGNMENT OF INTERESTS

Fully focused on our clients

## OUR GLOBAL REACH

### ★ PAYDEN & RYGEL OFFICES





# Payden's Commitment to Corporate Citizenship & Diversity

## Corporate Citizenship

- Supporting local and worldwide educational, social, and cultural programs
- Educational support through internship programs, mentoring relationships, job placement, tutoring and special programs
- Encouraging employees to give time and financial aid to their causes
- Making regular donations to a wide range of philanthropic organizations each year – through both a generous matching-gift program and directly
- Promote safer communities and mitigate the risks associated with gun violence through significant financial support of community outreach and non-profit programs

## Diversity

- Payden & Rygel a majority woman-owned firm
- Leadership of main investment strategies & business areas by women
- Employment of a diversity of cultures and ethnicities
- Employee representation on diversity-focused non-profits
- Improve educational opportunities for minority youth
- Encourage diversity and inclusion in the financial industry
  - CEO Advisory Council – No. America Diversity Project - NICSA
- Support diverse supplier relationships - Minority Broker/Dealer Program

## Some of Our Non-Profit Support

### Educational

- Academy of Business Leadership
- Academy of Finance
- Cristo Rey & Verbum Dei – High School Internships
  - One of first companies to enroll
  - LA and Boston offices employ underrepresented urban youth
- Metropolitan Council for Educational Opportunity
- St. Mary's Academy
- USC Neighborhood Academic Initiative (NAI)
- United Negro College Fund (UNCF)

### Social

- Big Brothers & Big Sisters of Los Angeles
- Cardinal Shehan Center
- Julie's Family Learning Program
- Los Angeles Mission
- Meals on Wheels
- Midnight Mission
- Natl Education for Assistance Dog Svcs (NEADS)
- Salvation Army
- St. Joseph Center
- United Way

### International/Emerging Markets

- EMPower
- Human Rights Watch



# Why Payden & Rygel for State of CT's EM Blended Mandate?

A manager's expertise in both local and dollar-pay – as well as the ability to customize blended benchmarks in a holistic way – is critical to your success. We believe we stand out in being able to do so due to our advantages.

## Deep Experience in Both Local and Dollar-pay

- Using our full-toolkit approach, we have been successfully managing dedicated EM debt portfolios since 1998, actively using both EM corporates (since inception) and local markets (since 2004) across accounts to add value.
- We have many years of experience managing dedicated full-toolkit assignments for pension funds, sovereign wealth funds and other institutions.

## Customized Blended Mandate Expertise

- We manage a variety of customized blended mandates for institutional clients, each of which is constructed according to client objectives.
- Rather than a sleeve approach where each of the asset classes is managed against its own benchmark and then merged, we look at blended mandates holistically. We look country by country for the best total return prospects across asset classes, and control for overall country concentration risk and portfolio duration.

## Our Size is An Advantage

- We can maneuver without derivatives, unlike many larger managers, because of our beneficial size and strong relationships with "the Street" where Payden is considered a top tier counterparty.
- Unlike very large managers, we can participate in next generation countries, new corporate issues, and smaller local markets in a meaningful way.
- We have no capacity issues.

## A Team Approach

- Part of our success is due to the flow of information among strategists:
  - Our country analysts and local strategists collaborate on the sovereign view.
  - Similarly, we work together with industry analysts on corporate selection to insure proper macroeconomic top-down considerations and superior bottom-up corporate credit analysis.
- As the EM market has expanded and become more diverse, we have added capacity in both our country and industry teams to cover new issuers.



# Representative Global Client List

## Corporations

Alaska Air Group, Inc.  
 Banque Internationale du Luxembourg  
 The Boeing Company  
 Cisco Systems, Inc.  
 Clearstream Banking Luxembourg  
 Facebook, Inc.  
 Finogest – Unofi  
 Northrop Grumman  
 PG&E Corporation  
 United Technologies

## Insurance

California Insurance Guarantee Association  
 CalOptima  
 Everest Re Group, Ltd.  
 German Reconstruction Loan Corporation  
 Guaranty Fund Management Services®  
 L.A. Care Health Plan  
 Lloyd's of London (multiple syndicates)  
 State of California Department of Insurance  
 Texas P & C Guaranty Association

## Public Entities

Asian Central Bank  
 City of Baltimore  
 City of Detroit Policemen and Firemen  
 City of Jacksonville  
 City of Memphis  
 City of Orlando  
 City of St. Louis  
 Employees' Retirement System of Rhode Island  
 Florida Local Government Investment Trust  
 Illinois State Board of Investment  
 Kansas Public Employees  
 L.A. Fire and Police  
 Middle East Sovereign Wealth Fund  
 Nevada Public Employees  
 VicSuper  
 Virginia Retirement System

## Health Care

Children's Hospital Los Angeles  
 Good Samaritan Hospital  
 Kaiser Permanente  
 Montefiore Medical Center  
 New York-Presbyterian Hospital  
 Tufts Health Plan

## Education, Foundations, Non-Profits

AARP  
 Emory University  
 Georgia Tech  
 Indiana University  
 Para Los Niños  
 The Pennsylvania State University  
 The Texas A&M University System  
 Trustees of Dartmouth College  
 United Nations Agencies (multiple)  
 University of Cincinnati  
 University of Connecticut Foundation  
 University of Michigan  
 University of Washington

## Jointly-Trusteed Plans / Unions

Building Service 32BJ Funds  
 Intl. Association of Machinists  
 Intl. Brotherhood of Electrical Workers (Nat'l)  
 National Electrical Annuity Plan  
 National Electrical Benefit Funds  
 New York District Council of Carpenters  
 Ohio Laborers' District Council  
 Producer-Writers Guild of America



# Payden & Rygel Emerging Markets Debt Business Summary

## EMD Overview

- Pioneers in the Asset Class:** The emerging market strategy was established over 20 years ago, in 1998. We bring this expertise and our established team and process to the management of all EM sectors.
- Consistency & Longevity:** Head of EM Kristin Ceva, PhD, CFA, Managing Director has led the EMD strategy since its inception. She has worked with Arthur Hovsepian, CFA, Director, Damon Eastman, CFA, Director and Vladimir Milev, CFA, Senior Vice President for well over a decade. All members of the dedicated EMD team are located at the firm's Los Angeles headquarters.
- Customization:** We believe our willingness to tailor portfolios sets us apart from many of our best peers. We work with our clients to meet their objectives, rather than offering a standard product.

## Assets Under Management – March 31, 2020 (\$mm)

- Emerging Market Debt: \$10,781
  - EMD Hard Currency: \$4,170
  - EMD Blended Currency: \$1,718
  - EMD Corporate: \$1,416
  - EMD Local Currency: \$1,204
  - EMD Non-dedicated: \$2,273

## Styles (Separate Account/Mutual Fund)

- 100% Dollar-pay sovereign benchmark (EMBI GD)**  
(US domiciled fund ticker: PYEMX; CIT & UCITS offered)
- 100% Local-pay benchmark (GBI EM GD)**  
(US domiciled fund ticker: PYELX)
- Blended benchmark (customized EMBI GD/ GBI EM GD)**  
(Dublin domiciled UCITS fund ticker: PARGEMD; multiple FX share classes)
- 100% Dollar-pay corporate benchmark (CEMBI BD)**  
(US domiciled fund ticker: PYCEX; Dublin domiciled UCITS fund ticker: PEMLBUD, multiple FX share classes)
- Custom EM Strategies for insurers**  
(Book yield-focused, liability-matched, capital-optimized, IG-only, EM corporates-only)
- Custom EM Strategies – Absolute Return, Unconstrained**  
(Low Duration and Benchmark agnostic)

## Types of Clients

- (Re) insurers (on / off-shore)
- Pension Funds (on / off-shore)
- Sovereign Wealth Funds
- Foundations / Endowments



# Emerging Markets Debt Strategy Personnel

## Firm Oversight & Risk Management

### Investment Policy Committee

- Joan Payden
- Brian Matthews
- Scott Weiner
- Mary Beth Syal
- Michael Salvay
- James Sarni
- Kristin Ceva
- Asha Joshi
- Jay Wong
- Nigel Jenkins

## EMD Strategy Team

**Arthur Hovsepian, CFA**  
Director  
Local Markets

**Kristin Ceva, PhD, CFA**  
Managing Director  
Head of Group

**Damon Eastman, CFA**  
Director  
Emerging Market Strategist

**Vladimir I. Milev, CFA**  
Senior Vice President  
CEE & CIS

**Ehsan Iraniparast, CFA**  
Senior Vice President  
Africa & Middle East

**Jason Katzen, CFA**  
Vice President  
Portfolio Architect

**Zubin Kapadia, CFA**  
Senior Vice President  
Corporate Strategist

**Alexis Roach, CFA**  
Vice President  
Latin America

**Alexander Leifer-King, CFA**  
Vice President  
Asia & Local Markets

**Alex Levine, CFA**  
Associate  
EM Trader

**Alec Small, CFA**  
Vice President  
EM Trader

## Integrated Research

**Global Economics**

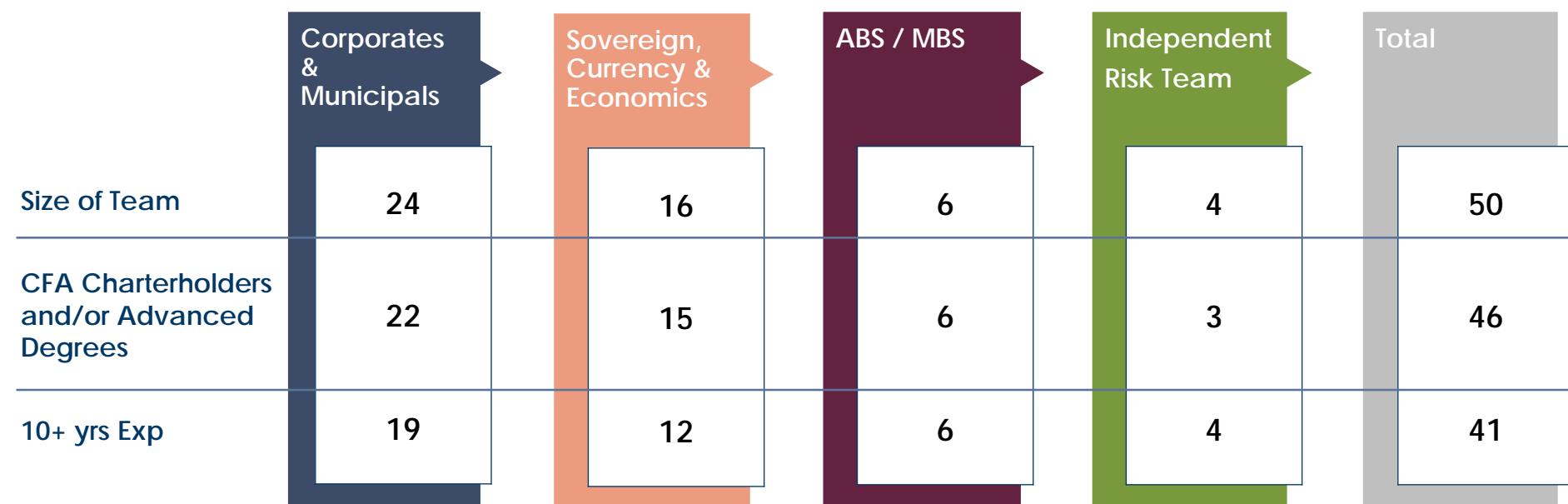
**Currency Team**

**Industry Team**



## Research, Strategy & Risk Management: Senior & Experienced

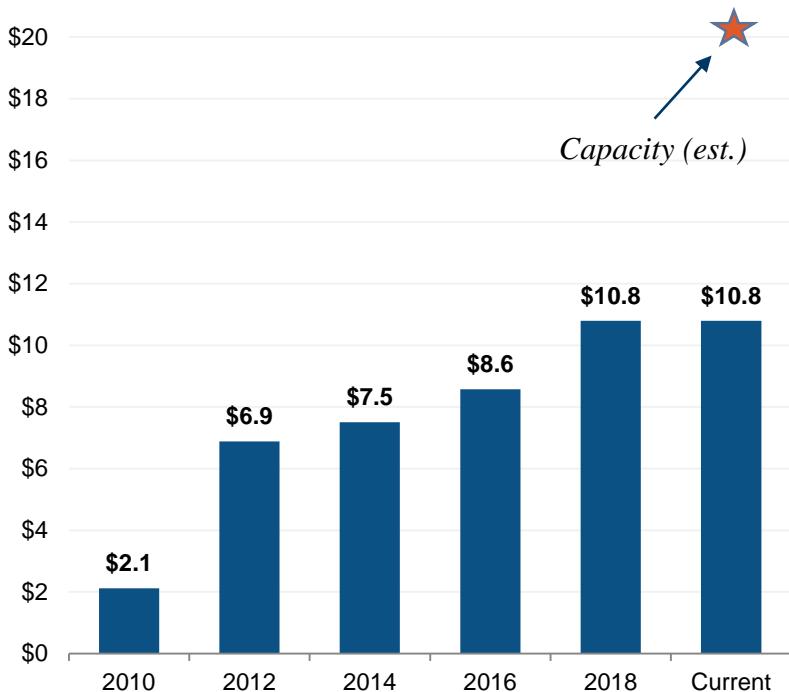
Fundamental research and risk management are cornerstones of all of our strategies firmwide



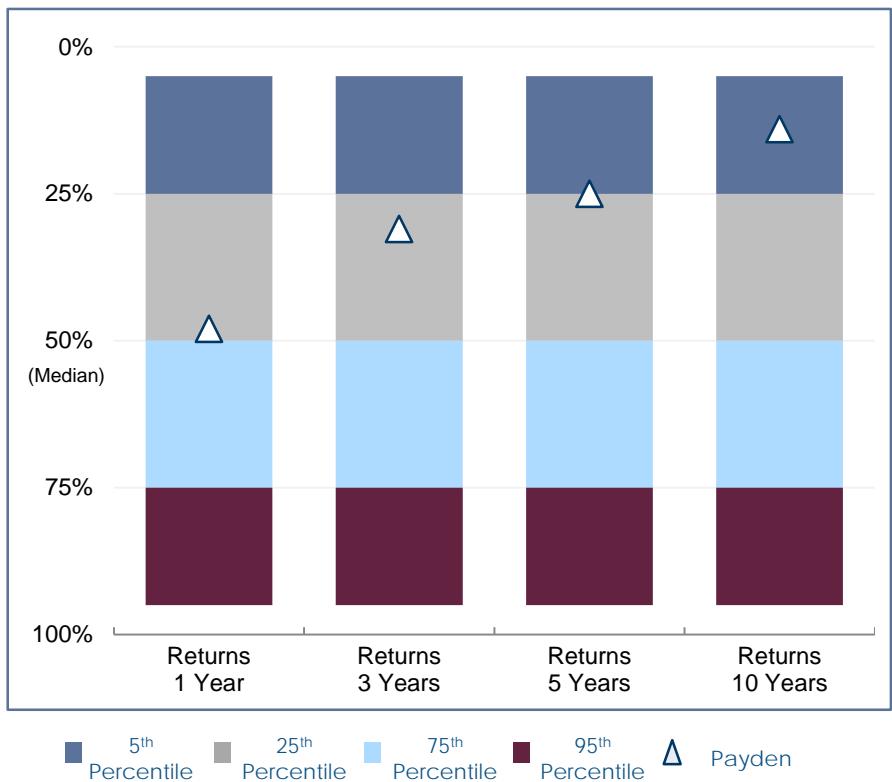


## Payden EMD Success

### A Leading EMD Manager, with Capacity EMD Assets in Billions, as of 31 March 2020



### Strong Long-Run Performance As of 31 March 2020



Source: eVestment

Percentile rank based on total return, net of fees.

Percentiles: Lipper MF-EMD-Emg Mkts HC Debt universe

Number of Observations: 267 (1 year), 235 (3 year), 184 (5 year), 63 (10 year)

II

## Investment Process





# Emerging Markets Investment Process & Philosophy

## STEP 1

### Fundamental Research

- Global Economic Perspective
- EM Sovereign Risk

### Country Decision Key Alpha Driver

- Fundamental country improvement/deterioration impacts all asset classes (dollar-pay sov, local, corp)
- Focus on countries implementing structural reforms
- Smaller “next generation” sovereigns can offer greater growth & income opportunities

## STEP 2

### Asset Allocation

- USD Sovereign & Quasi-Sovereign
- Local Rates & Currency
- Private Sector Corporates

### Full-Toolkit Total Return Opportunities

- Focus on comparison of expected returns in dollar-pay and local markets
- Off-index opportunities in both dollar-pay and local markets can be more attractive than benchmark picks

## STEP 3

### Security Selection

- US Dollar Bond Yield Curve
- Local Debt Yield Curve
- Relative Value & Technical

### Diversify Sources of Risk and Alpha

- Monitor and analyze yield curve movement and spread relationships/z-scores
- Evaluate relative value by credit quality, duration and geography and account for bond-specific factors

### Portfolio Construction

Size positions based on conviction, within relevant risk framework, to meet return objectives while maintaining diversification.



# Payden Country Scorecard

STEP 1

While countries are scored quarterly with regard to credit, rates, and currency, the starting point – the sovereign view – is the product of **collaboration between country analysts and local strategists**.

		Ghana (B3/P, B/S, B/S)		3.4	
Factor		Analysis		Weight	Score
Macroeconomic Analysis	Growth	Growth expectations are near 6% for 2020, helped by oil production, stable inflation, industrial projects, recap of banks and reduced fiscal austerity.		20%	4.0
	Monetary Policy	Inflation has stabilized near 8%, within the central bank's 8% +/- 2% band. The CB may cautiously ease but is concerned with FX pressure.		10%	3.5
	Fiscal Policy	The government reached a 4.5% of GDP deficit in 2019 and ~5% is expected in 2020f, but revenue levels remain a challenge. Debt has crept up on contingent liabilities, but underlying primary surpluses are helpful.		25%	3.0
	External Accounts	Balance-of-payments dynamics have improved, with a historically low current account deficit near 3% of GDP expected in 2019-2020 and solid FDI. Reserve accumulation remains an issue for Ghana, however.		15%	3.5
ESG	Governance	The NPP government has focused on private-sector friendly policy, though fiscal risks must be watched into 2020 elections, which are likely to be tightly contested. Ghana outperforms peers on corruption and rule of law but has room to improve on institutional strength.		20%	3.0
	Social/Environmental	While still a low income economy, Ghana performs well within Africa on developmental issues. The press is relatively free and vibrant.		10%	3.5

Each factor is assigned a score between 1 and 5, 5 signaling strong improvement and 1 strong deterioration. **Unlike a credit rating agency, we score countries with a six-month forward-looking view**, which allows us to compare across credit quality.

Factors are weighted based on dynamic individual country considerations. **The subjective weights allow us to properly capture the relative importance of a single factor for a country's outlook.**



# Country Dollar-Pay Spread Forecast – Q4 2019

STEP 2

The EM team meets on a quarterly basis to forecast country spreads with a 6-month investment horizon.

Country	Duration	Current Yield (%)	Spread (bps)	Spread Forecast (6m, bps)	Spread change (6m, bps)	Spread Return (6m, %)	Yield Carry (6m, %)	Total Expected Return (6m, %)**	Portfolio Bias
Ghana	6.2	7.5	552	520	(32)	2.0	3.7	5.7	Overweight
El Salvador	6.8	7.2	404	375	(29)	2.0	3.6	5.6	Overweight
Sri Lanka	5.9	6.4	511	475	(36)	2.1	3.2	5.3	Overweight
Ukraine	5.4	7.2	460	430	(30)	1.6	3.6	5.2	Overweight
Ivory Coast	8.8	6.1	423	400	(23)	2.0	3.0	5.1	Overweight
Mongolia	3.7	7.7	362	340	(22)	0.8	3.9	4.7	Overweight
Honduras	5.9	5.8	319	300	(19)	1.1	2.9	4.0	Overweight
Armenia	8.2	4.0	247	225	(22)	1.8	2.0	3.9	Overweight
Brazil	6.7	4.3	185	165	(20)	1.4	2.2	3.5	Overweight
Oman	6.6	5.6	392	416	24	(1.6)	2.8	1.2	Underweight
Poland	5.9	3.0	44	62	18	(1.1)	1.5	0.5	Underweight
Chile	7.1	3.0	64	80	16	(1.2)	1.5	0.4	Underweight
Philippines	7.3	2.9	66	82	16	(1.2)	1.4	0.3	Underweight
Kenya	6.4	6.8	439	489	50	(3.2)	3.4	0.2	Underweight
Saudi Arabia	7.3	3.4	118	140	22	(1.6)	1.7	0.1	Underweight
Jamaica	6.1	5.7	213	259	46	(2.8)	2.8	(0.0)	Underweight
Paraguay	6.4	4.3	149	184	35	(2.2)	2.1	(0.1)	Underweight
Romania	3.8	4.4	74	137	63	(2.4)	2.2	(0.2)	Underweight

\*Sample, assuming unchanged 10-year Treasury yield.

\*\*Return calculated as: % return spread move + % yield carry + UST impact (not shown)

Forecasts are subject to change and are not guaranteed.



### Strong and Independent Central Bank

- A Central Bank with credibility in implementing effective policy measures and a track record of successfully addressing inflationary expectations
- Clearly elucidated targeting and goals of monetary policy (focus on inflation, growth, or currency stability)

### Favorable Interest Rate Outlook

- Inception of easing cycle, or
- Market mispricing magnitude of monetary policy, or
- A fairly valued local curve in the front end where the steepness of the curve offers value

### Currency Outlook

- We focus on medium-term factors
- Look for positive currency fundamental drivers including a healthy or improving balance of payments position, strong FDI flows and constructive growth dynamics

### Supportive Technical factors

- Local participation, i.e. Pension funds involved in the long end of the curve in Mexico
- Foreign involvement seen as improving the investor base, depth and liquidity of the market
- Issuance - favor countries which are likely to use external markets as well as local markets to issue debt

### Good Liquidity

- Look for a relatively tight bid/ ask spread for each market, typically 5-15 basis points
- Market accessibility



# Scorecard Example – Local Rates: Indonesia

STEP 2

		Indonesia – Local Rates	3.8	
		Analysis	Weight	Score
Fundamental Factors	Growth	Growth is below potential, expected near 5% for 2020, but should be helped by easier monetary policy. Infrastructure and labor reform would offer upside.	10%	4.0
	Monetary Policy	Inflation is contained within the CB band and expected at 3.9% for 2020f. Bank Indonesia has been on a cutting cycle but will be wary of FX moves.	20%	5.0
	Fiscal Policy	The 2020f fiscal deficit at of 2.3% of GDP is anchored by Minister Indrawati's strong stewardship. The government is proposing critical tax reform and digitalization.	15%	3.0
	External Accounts	The CA deficit could widen on the infrastructure push, but is likely to remain contained near 2.5% of GDP. FX reserves have re-built to record highs.	5%	3.0
	Governance	Jokowi's electoral mandate and legislative majority bodes well for his second term. The space for reforms may be challenged at times by social protests as seen in the Sep 2019 reaction to corruption reforms.	15%	4.0
	Social/Environmental	Indonesia lags peers on human development; Jokowi has focused on improving the education system. Political freedom has gained meaningfully. An ambitious renewable energy policy faces implementation risks.	15%	3.0
	Developed Rates Outlook	Core rates subdued.	15%	3.5
Rate Specific	Flow Environment	Flows are correlated to the prevailing market environment, though country-specific factors offer support.	5%	3.5



# Country Local Markets Forecast – Q4 2019

STEP 2

- The EM team meets on a quarterly basis to forecast local yields and currencies with a 6-month investment horizon.
- Investing in local markets can be a compelling opportunity in many countries. Higher coupon income, potential price return and country-specific factors provide multiple avenues for return.

Country	Duration	Yield (%)	Yield Forecast (6m, %)	Yield Change (6m, bps)	Return Yield Move (6m, %)	Yield Carry (6m, %)	FX Spot Return (6m, %)	Total Expected Return (6m, %)*
Brazil	3.0	5.8	5.4	(45)	1.4	2.9	3.5	7.8
Mexico	5.5	6.9	6.3	(61)	3.3	3.4	1.0	7.8
Egypt	2.0	14.0	13.3	(75)	1.5	7.0	(1.0)	7.5
Indonesia	5.8	7.1	6.5	(59)	3.4	3.5	-	7.0
Nigeria	0.5	13.0	13.0	0	0.0	6.5	-	6.5
Russia	4.8	6.3	5.9	(46)	2.2	3.2	1.0	6.3
South Africa	7.0	9.6	9.1	(49)	3.5	4.8	(2.0)	6.3
Peru	7.7	4.5	4.1	(36)	2.8	2.2	1.0	6.0
Colombia	5.2	5.7	5.5	(20)	1.1	2.9	2.0	5.9
Sri Lanka	3.5	9.8	9.5	(30)	1.1	4.9	(1.0)	5.0
Dom Rep	3.8	9.1	8.8	(31)	1.2	4.5	(1.0)	4.7
Malaysia	5.4	3.4	3.1	(34)	1.8	1.7	1.0	4.6
Chile	8.4	3.4	3.1	(29)	2.4	1.7	-	4.1
Poland	4.4	1.8	1.7	(12)	0.5	0.9	1.0	2.4
Romania	3.6	3.8	3.5	(33)	1.2	1.9	(1.0)	2.1
Turkey	3.1	12.4	12.8	36	(1.1)	6.2	(3.0)	2.1
Thailand	7.8	1.6	1.5	(9)	0.7	0.8	-	1.5
Hungary	4.8	1.1	1.3	11	(0.5)	0.6	1.0	1.0
Czech Republic	6.0	1.3	1.5	21	(1.3)	0.6	1.5	0.9

\*Return calculated as: % return yield move + % yield carry + % return FX

Forecasts are subject to change and are not guaranteed.

Payden's Country and Industry Teams work together closely on all EM corporate and quasi-sovereign opportunities. We prioritize this collaboration to ensure that country views, sector dynamics, creditworthiness and valuation align when making investment decisions.

Top-Down  
Country Analyst  
Input

Bottom-Up  
Industry Analyst  
Input

### Country-Specific Business Environment

- Review of legal system and potential regulatory changes
- FX exposure and hedging policy
- Assessment of systemic importance and state support for government-related entities

### Strong and Stable Free Cash Flow

- Consistent record of free cash flow generation
- Reasonable capital spending plans

### Experienced Management Team and Conservative Financial Policy

- Experience in operating company through various economic cycles
- Conservative share repurchases and dividend policy

### Excellent Liquidity and Flexible Capital Structure

- Proven access to debt or equity capital markets
- Senior secured, senior unsecured vs. subordinated debt

### Protective Covenants

- Adherence to maintenance covenants
- Limited restricted payments baskets

### Environment, Social and Governance Standards

- Independence of the board and alignment of shareholder/investor interests
- Commitment to Corporate Social Responsibility
- Pollution and carbon emissions practices



## Six-Factor Corporate Framework – GeoPark Example

STEP 2

GeoPark Ltd. is an exploration and production company with operations focused in Chile, Colombia, Brazil, Peru, and Argentina. The company is predominantly an oil focused E&P with reported 3Q19 production results of 39.6 kboe/d (85% Oil & 15% Gas) and 2P PV-10 of \$2.7B. On an LTM basis, GeoPark generated \$375MM in adjusted EBITDA, \$61MM in FCF, and had 1.0x net leverage.

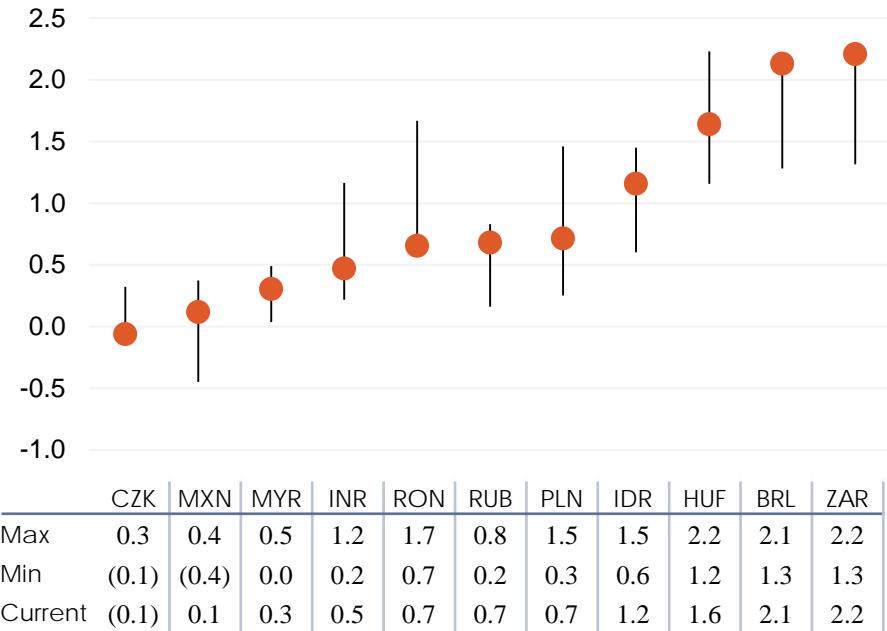
		GeoPark Ltd. (B+/B+)
Factor	Sub-Factor	Analysis
Industry & Company Outlook	Long Term Industry Trends	<ul style="list-style-type: none"> <li>The E&amp;P industry is dependent on the price of commodities; in falling price environments E&amp;Ps can become stressed. GeoPark's prudent balance sheet and operating efficiencies allow them to be more resilient in challenged commodity environments versus peers.</li> </ul>
	Company Specific Drivers	<ul style="list-style-type: none"> <li>GeoPark has shown strong operating performance with YoY production growth of 6%, FCF generation that is 14% of total debt, and a 12.9x interest coverage ratio which is above peers.</li> </ul>
Financial Metrics	Financial and Operating Metrics	<ul style="list-style-type: none"> <li>The company has a \$69MM cash position as its primary liquidity and current net leverage of 1.0x, a 0.3x decline YoY with no near term maturities.</li> <li>Management's track record of prudent capital efficiency in varying commodity environments provides a framework for future growth. Three initiatives management has highlighted in 2019 include: 1) Focus capital expansion in Peru and Colombia to increase production by 15%; 2) Drive costs down and maximize netbacks; 3) Grow within cash flow through capex flexibility.</li> </ul>
	Trends/Outlook for Metrics	
Governance/Management	Board Independence	<ul style="list-style-type: none"> <li>The board is majority independent with 3 of the 8 members currently holding executive positions.</li> <li>Unlike 92% of companies in its home market, GeoPark does not have a controlling shareholder, which helps align shareholder voting rights with the economic interests of the company.</li> </ul>
	Ownership/Control	
Environmental/Social	Reputation	<ul style="list-style-type: none"> <li>GeoPark aims to enhance local goals and customs to foster sustainable value to all stakeholders.</li> </ul>
	Corporate Social Responsibility	<ul style="list-style-type: none"> <li>The company emphasizes a safe and motivating workplace with initiatives to attract, retain, and motivate employees.</li> </ul>
	Pollution/Carbon Emissions	<ul style="list-style-type: none"> <li>GeoPark has developed an Environmental Management Processes certified through the SASB standards ISO 14001:2015, ensuring proper environmental processes and practices at its active sites.</li> </ul>
Relative Value	Compensation versus Peers	<ul style="list-style-type: none"> <li>GeoPark trades in line with both EM and US HY B/BB E&amp;P operators, but benefits from a conservative balance sheet.</li> </ul>
Liquidity	Volumes; Bid/Ask Spread	<ul style="list-style-type: none"> <li>GeoPark issued a 425MM bond in early 2018 and has moderate liquidity</li> </ul>



## Security Selection – Local Markets

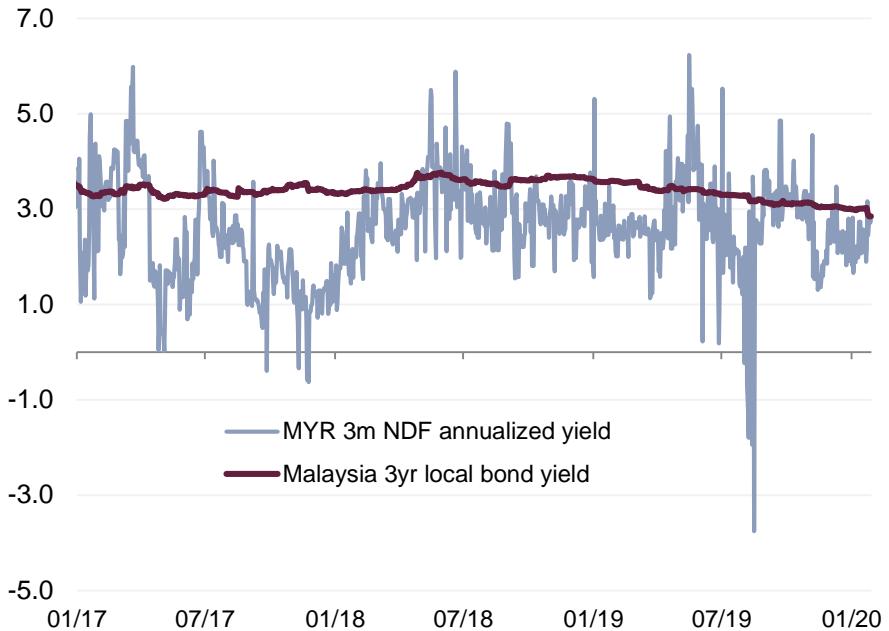
STEP 3

### Local Yield Curve Shapes – 10 year minus 2 year Percent, one year range



- Local yield curve shapes paint a picture of the overall economic environment in each country. Curves respond to inflation, monetary policy and market technicals.
- Beyond only the current level, it is important to monitor historic steepness or flatness for opportunities.

### Monitoring Non-Deliverable Forwards (NDF) Malaysian ringgit 3m NDF annualized yield vs front end bond yield



- Understanding the implied cost or benefit in FX forward markets enables us to add value, particularly in the front end of the curve.
- For example, when forward points widen relative to bonds yields, we will look for opportunities to sell front end bonds and pick up yield in the forwards. We've done this opportunistically in MYR, among other currencies.

As of Jan 2020

Source: Bloomberg, Payden & Rygel



# Portfolio Construction: Putting it into Action – Indonesia

	Index		Payden		Allocation vs Benchmark
	Weight	Contrib. to Dur.	Weight	Contrib. to Dur.	
<b>Total</b>	<b>7.2%</b>	<b>0.48</b>	<b>8.6%</b>	<b>0.67</b>	<b>Overweight</b>
Sovereign USD	1.5%	0.13	1.1%	0.14	Neutral
Quasi-Sovereign USD	0.7%	0.06	0.6%	0.07	Neutral
Corporates USD	--	--	0.4%	0.04	Off-index
Local Currency	5.0%	0.29	6.5%	0.42	Overweight

STEP 1

Favorable outlook for country fundamentals

- Sovereign USD bonds have value in the long end
- Quasi opportunities limited
- Corporate bonds offer yield and diversification
- Constructive on local FX

STEP 2

STEP 3

Local duration has value and FX should be supported

As of Jan 2020

Positioning versus the 50/50 JP Morgan EMBI Global Diversified/GBI-EM Global Diversified



# Portfolio Construction: Payden's Holistic Approach

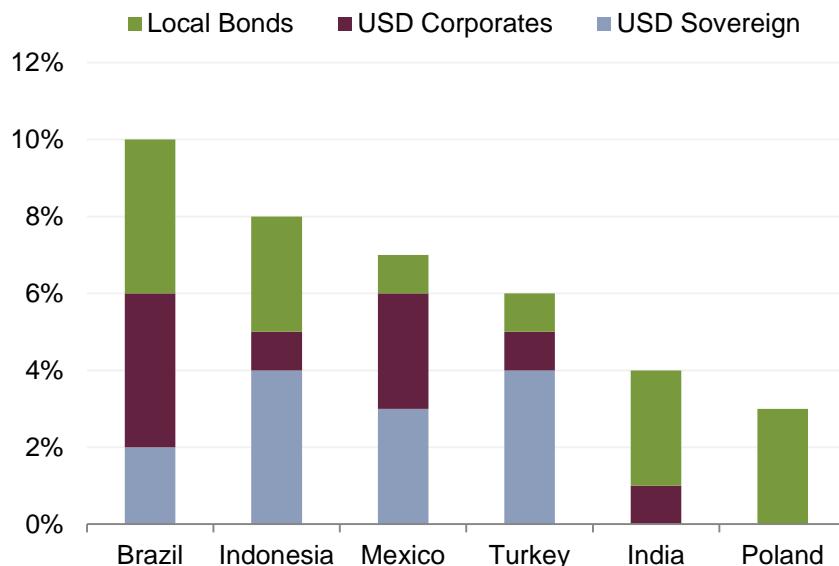
## Efficiency and Risk Management

- A Holistic approach leads to **optimized, return-focused asset allocation** and **enhances diversification**.
- A Sleeve approach can create country/sector concentration risks and complicate duration management.

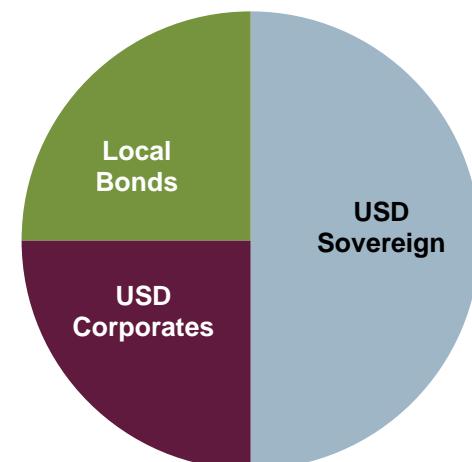
## Capturing Country Themes

- With around 80 countries in the EM universe, broad asset allocation has become challenging.
- We capture country stories by **comparing the range of investment opportunities simultaneously**.
- For example, we take Brazil risk in corporate and local debt, given stronger expected returns versus USD sovereign.

### Holistic Approach



### Sleeve Approach





### III Portfolio and Performance



# State of Connecticut EMD: Portfolio Characteristics

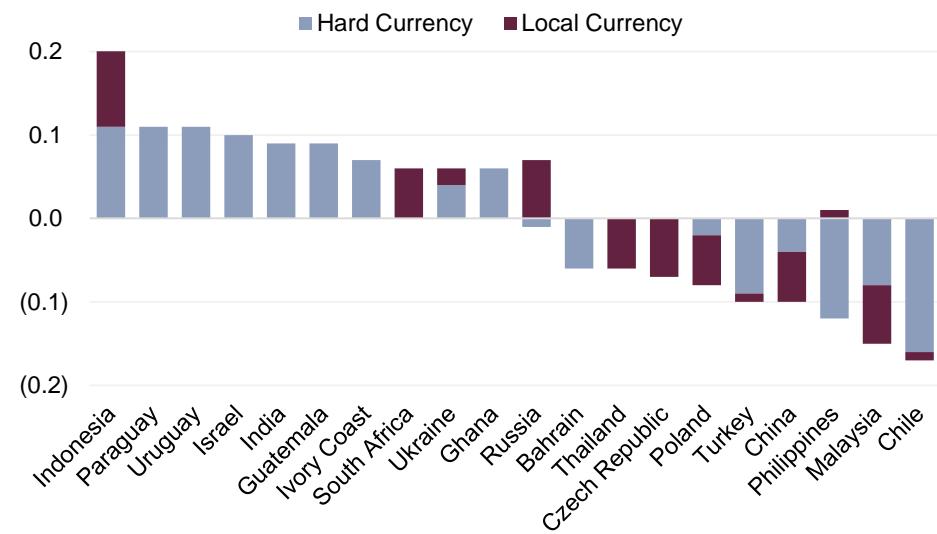
As of May 31, 2020

Portfolio Characteristics	Payden	Index
Average Credit Quality	BB+	BBB-
Duration	6.81 yrs	6.57 yrs
Yield to Maturity	6.62%	5.23%

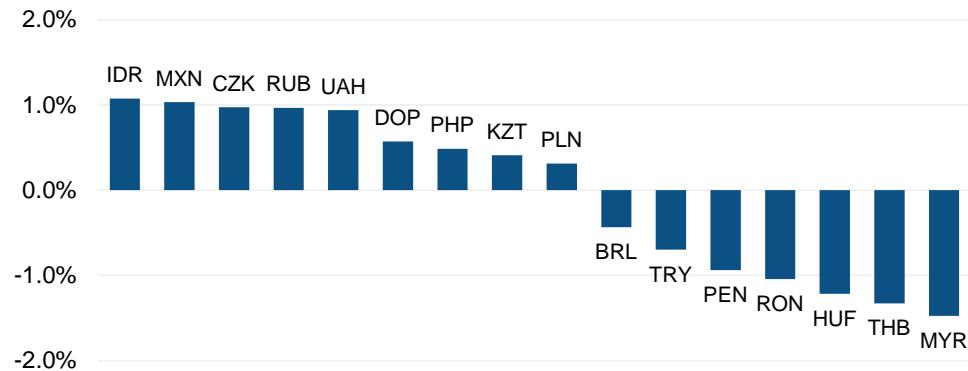
Exposure by Asset Class	Absolute (%)	Index Relative (%)
IG Sovereign/Quasi (USD)	12.2	-15.6
Below IG Sovereign/Quasi (USD)	28.8	6.6
Corporates (USD)	8.1	8.1
Local Currency Bonds	49.7	-0.3
<i>Net Currency Exposure</i>	49.8	-0.2

Top 5 Country Exposures	%	CTD
Indonesia	9.8	0.7
Mexico	7.6	0.5
Russia	6.1	0.4
S. Africa	5.9	0.4
Colombia	5.7	0.3

## Top Country Allocations, by Contribution to Duration



## Active Currency Positions



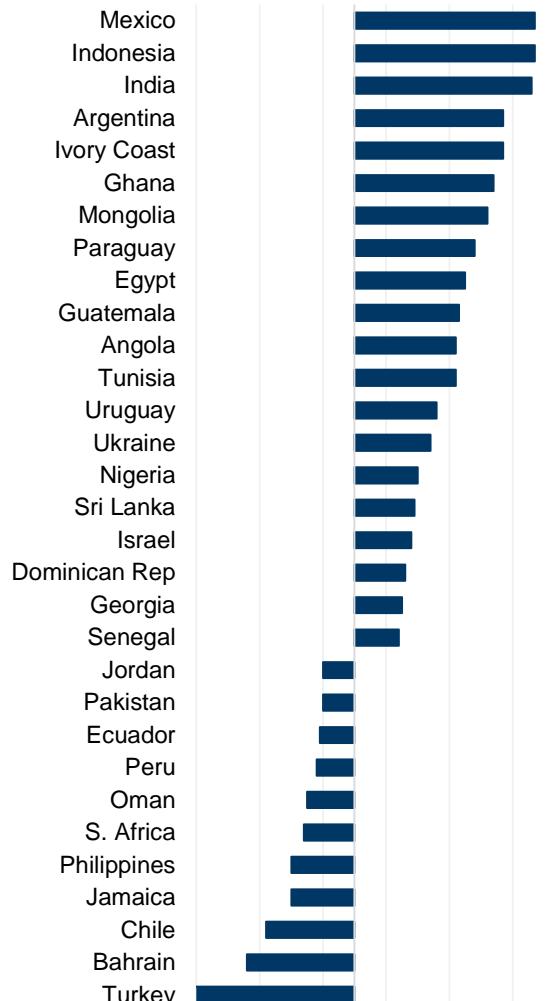
\*Index – 50/50 JP Morgan EMBI Global Diversified/GBI-EM Global Diversified



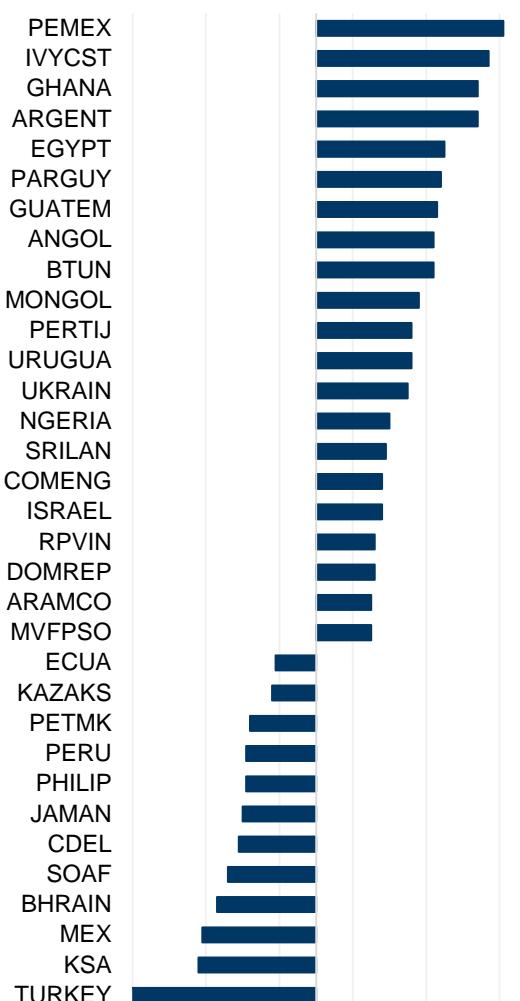
# State of Connecticut EMD: Portfolio Characteristics\*

As of May 31, 2020

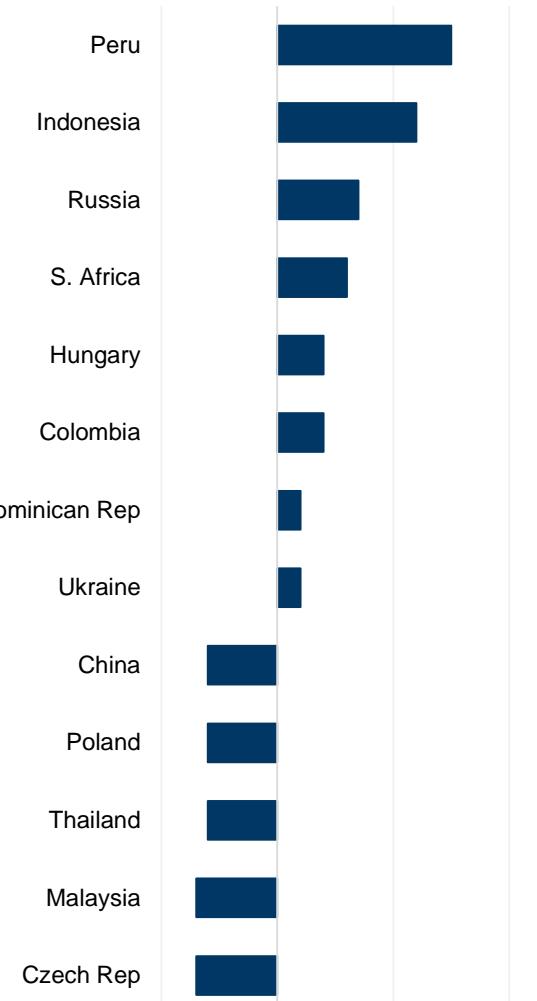
## Active DTS Contribution by Country



## Active DTS Contribution by Ticker



## Local Rates, by Active Contrib. to Dur.





# State of Connecticut EMD Fund Portfolio Attribution: YTD as of May 31, 2020

## YTD 2020

USD denominated Sovereign  
**-69 bps**

USD denominated Corporates  
and Quasi-Sovereigns  
**-32 bps**

Local Rates  
**-33 bps**

Local Currency  
**-56 bps**

Derivatives  
**+59 bps**

## Investment Strategy Commentary

- Top contributors: Lebanon (underweight), Ecuador (underweight), Turkey (underweight), and Israel (overweight)
- Top detractors: Angola (overweight), Sri Lanka (overweight), Ghana (overweight), Ukraine (overweight), Philippines (underweight), and Peru (underweight)

### Quasi-sovereigns:

- Top contributors: Indonesia (selection) and United Arab Emirates (selection)
- Top detractors: Mexico (overweight), China (underweight), and Chile (underweight)

### Corporates:

- Top contributors: South Africa (telecommunications), Malaysia (financials), and Russia (oil and gas)
- Top detractors: Chile (transports), Brazil (oil and gas), and Peru (oil and gas)

- Top contributors: Peru (overweight), Colombia (overweight), and Hungary (overweight)
- Top detractors: Thailand (underweight), Czech Republic (underweight), Poland (underweight), and Dominican Republic (overweight)

- Top contributors: Thai baht (underweight), South African rand (underweight), and Mexican peso (overweight)
- Top detractors: Brazilian real (overweight), Colombian peso (overweight), and Indonesian rupiah (overweight)

- Top contributors: Buying protection via U.S. HY CDX, as well as sovereign CDS in Turkey and Brazil

## YTD 2020

**-131 bps**

## Total Return

**Account\***

## YTD 2020

**-8.01%**

**Benchmark**

**-6.70%**

	YTD 2020	Trailing 1 Year	Trailing 3 Year	Since Inception
Account (gross)*	-8.01%	1.34%	2.02%	4.89%
Account (net)*	-8.14%	1.03%	1.69%	4.56%
Benchmark	-6.70%	1.22%	1.75%	4.25%
Alpha (gross)	-1.31%	0.12%	0.27%	0.64%

\*Returns are unaudited; attribution is gross of fees through May 31, 2020.

Index – 50/50 JPMorgan EMBI Global Diversified / GBI-EM Global Diversified

Inception date: 12/1/2016



## Risk Parameters Matrix: Blended Currency Strategy

	Percentage (Absolute)	Percentage (Benchmark Relative)	Contribution to Duration (Benchmark Relative)
<b>Country Exposure</b>			
Minimum Number of Countries - 25			
Per Country Maximum	15%	10%	0.60
<b>EM USD Sovereigns*</b>			
<i>USD pay Sovereign Exposure per Country Maximum</i>			
A	15%	10%	0.60
BBB	15%	10%	0.60
BB	10%	7.5%	0.50
B	10%	5%	0.40
Other	5%	3%	0.20
Per name Maximum Quasi-Sovereign		3%	0.20
<b>Corporates</b>			
Total Corporate Exposure	35%		2.50
Below Investment Grade Corporate Exposure	25%		1.75
Per name Maximum Investment Grade	1.25%		0.20
Per name Maximum Below Investment Grade	0.75%		0.10
<b>Local Rates</b>			
Total Local Rates Exposure (Bonds and Swaps)	75%	30%	2.75
Credit Linked Notes	30%		2.00
<i>Local Rates Exposure per Country Maximum</i>			
Liquid	15%	10%	0.60
Less Liquid	5%	3%	0.20
<b>Currency</b>			
Maximum Total EM Currency Exposure	75%	30%	
Max per Liquid Currency	15%	10%	
Max per Less Liquid Currency	5%	3%	
<b>Portfolio Level Limits</b>			
Maximum Overall Duration Limits			+/- 2 years
Number of Securities			200-300
Tracking Error Range			150-350 bps annualized
Maximum Cash (except in extreme environment)			< 2.0%

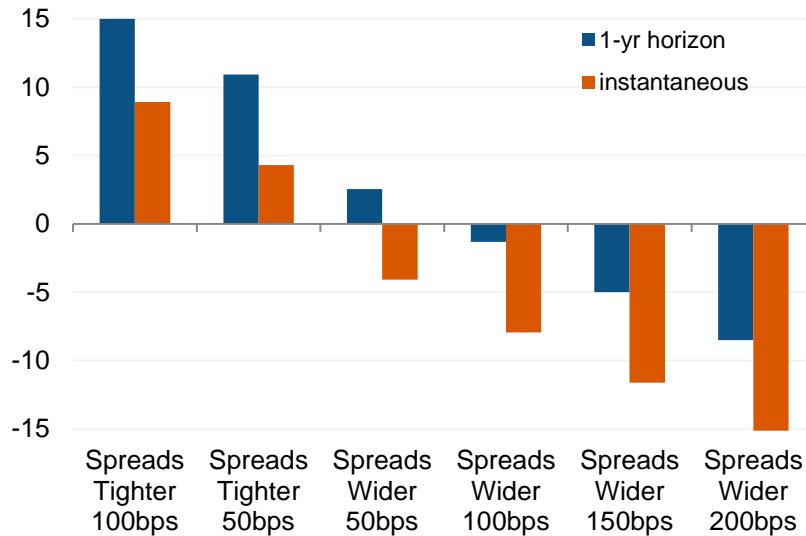
\*Inclusive of Quasi-Sovereign entities



## State of Connecticut EMD: Risk Dashboard

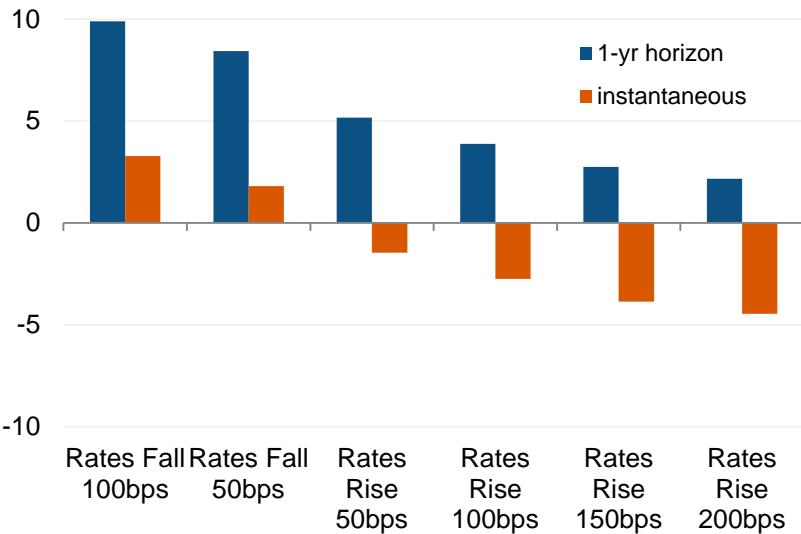
- The Risk Committee conducts regular stress testing and scenario analysis to help the EMD team better understand the behavior of the portfolio under various market conditions.
- Scenarios can reflect global themes discussed by the Investment Policy Committee and Economist Team, for example, to help EMD managers calibrate risks to the portfolio.

### EM Spread Changes – Estimated Total Return %



Source: Aladdin

### Rate Shift – Estimated Total Return %



### Market Stress Scenarios

Scenario Description	Instantaneous	1yr Horizon
EM Spreads +50%	-14.56%	-7.94%
Strong USD (DXY up 10%)	-14.99%	-8.37%
VIX Index +100%	-26.76%	-20.14%
Oil Price -30%	-2.44%	4.18%

IV

## EMD Themes



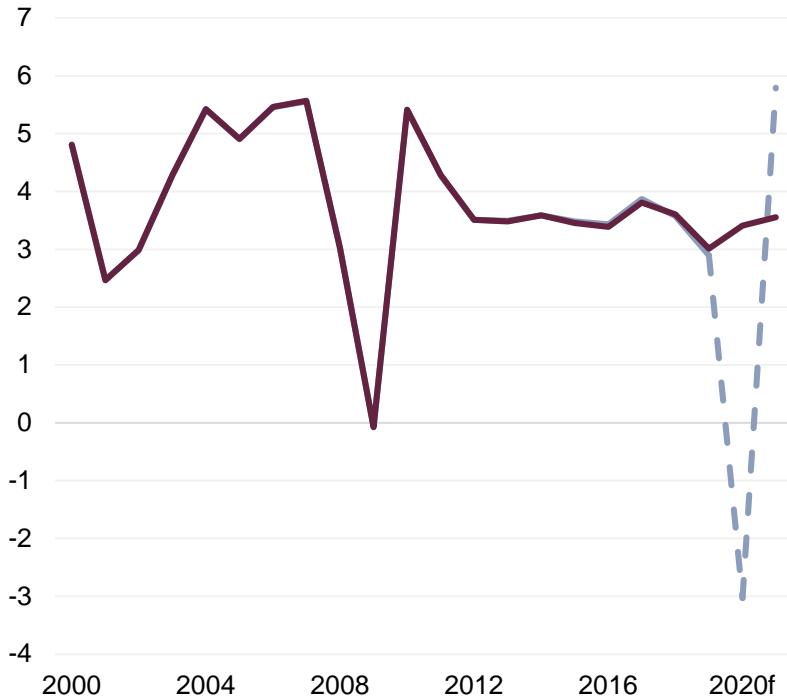


## Global Growth: Contraction in 2020, Slow Road Back to Trend

- Estimates suggest a large hit to 2020 growth, with growth expected to contract more than what was seen in the Global Financial Crisis. Fiscal and monetary policy will become an important support factor starting in H2-2020.
- We expect a sharp dip in Q2-20 followed by a solid recovery from H2 2020 into 2021. However, even in the context of a strong rebound in growth in 2021 (5.8%), global GDP will be well below the level initially projected for 2021.

### Global Growth in 2020 – Worse than the GFC

Percent change, calendar year basis

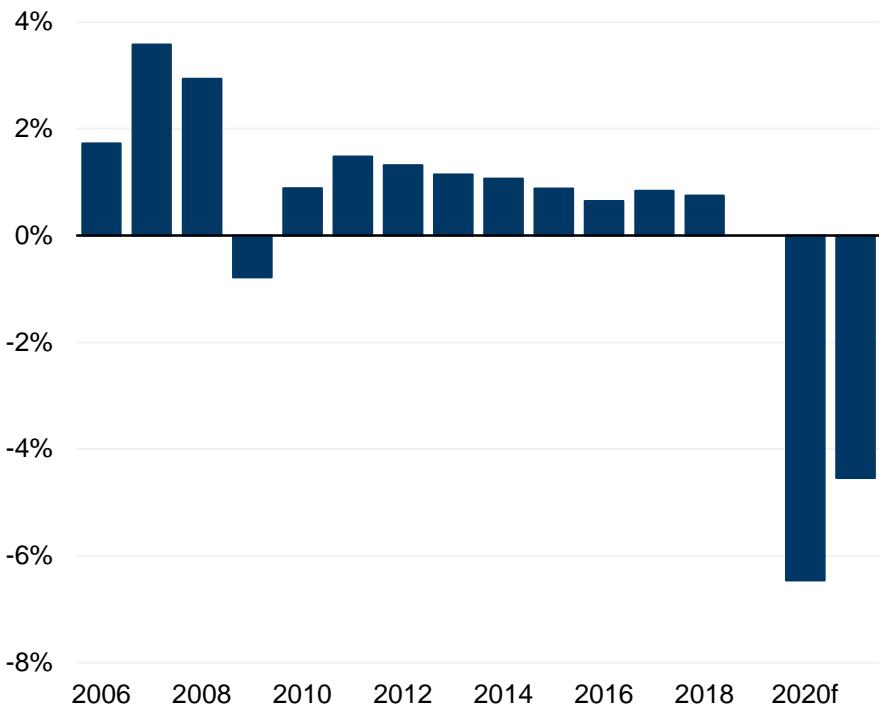


As of April 2020

Source: Payden Estimates, Haver, IMF

### Global Growth Still Well Below Trend Rate Growth Seen in Last 10 years

Ppt difference between actual GDP and trend GDP



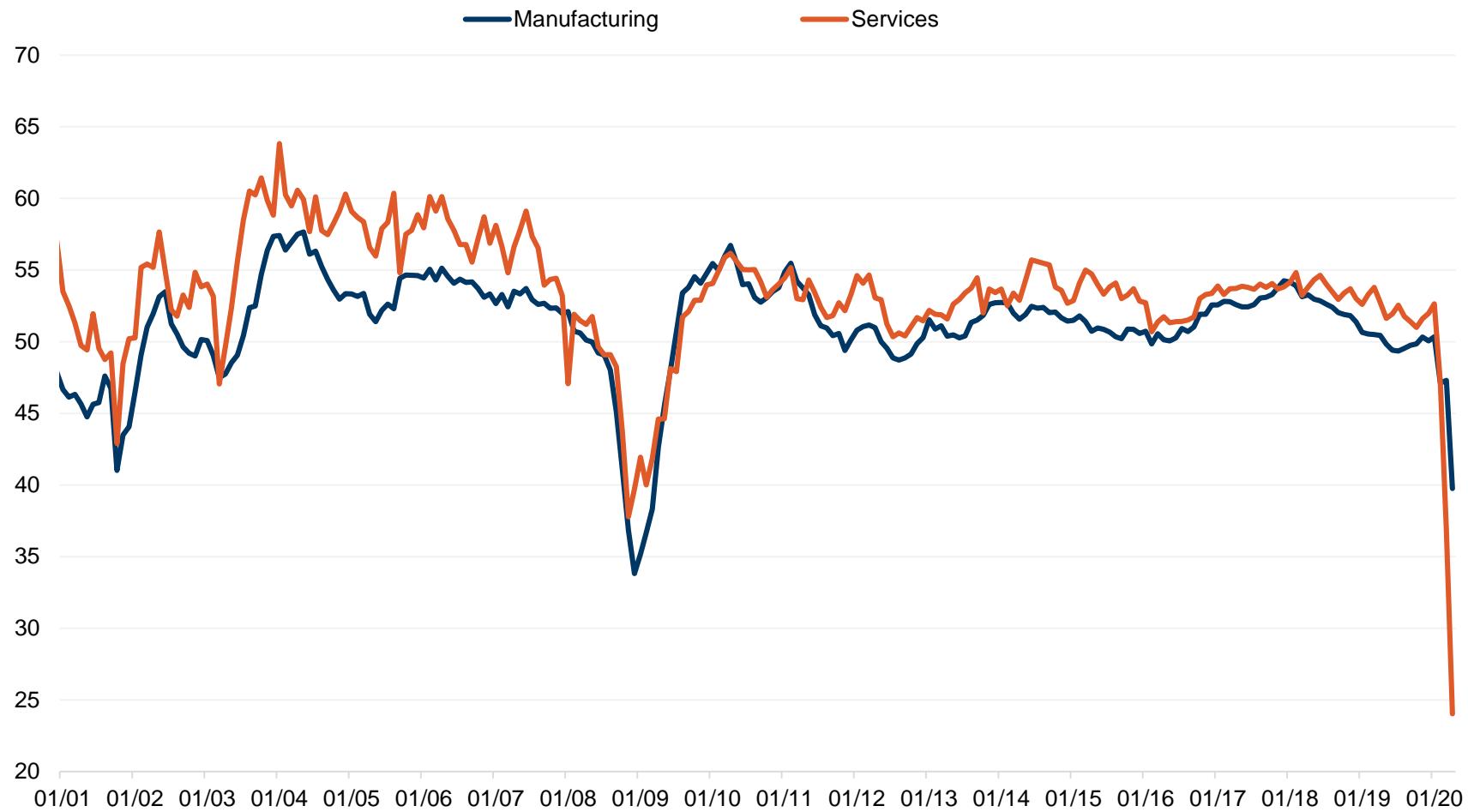


## Traditional Economic Releases Starting to Show Sharp Decline in Activity

First Time Since the Turn of the Century when Services Have Led the Downturn

### Global Manufacturing and Service PMI Data

PMI level above 50 is in expansionary territory



Source: JPMorgan

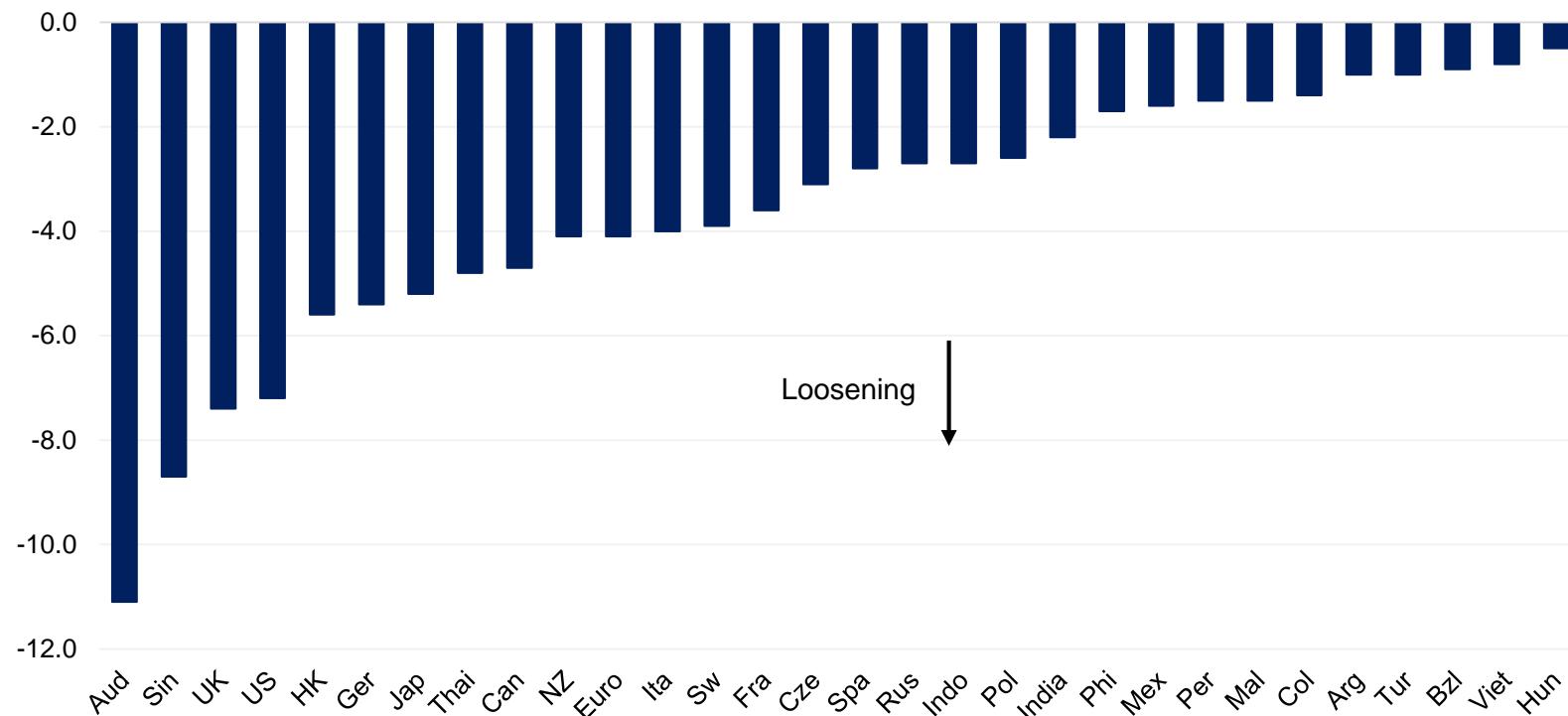


## Fiscal Policy Already Announced – More to Come

- Advanced economies will likely do most of the heavy lifting on fiscal stimulus, with many fiscal packages in excess of 4.0% of GDP.
- EM countries have announced fiscal packages, albeit often of a smaller magnitude than those seen in the G7. Even EM countries with fiscal rules are seeking exemptions.

### Fiscal Stimulus as % of GDP

Change in cyclically adjusted primary balance in 2020 (incl. pre-Covid-19 budget announcements)



As of May 2020

Source: UBS, National sources

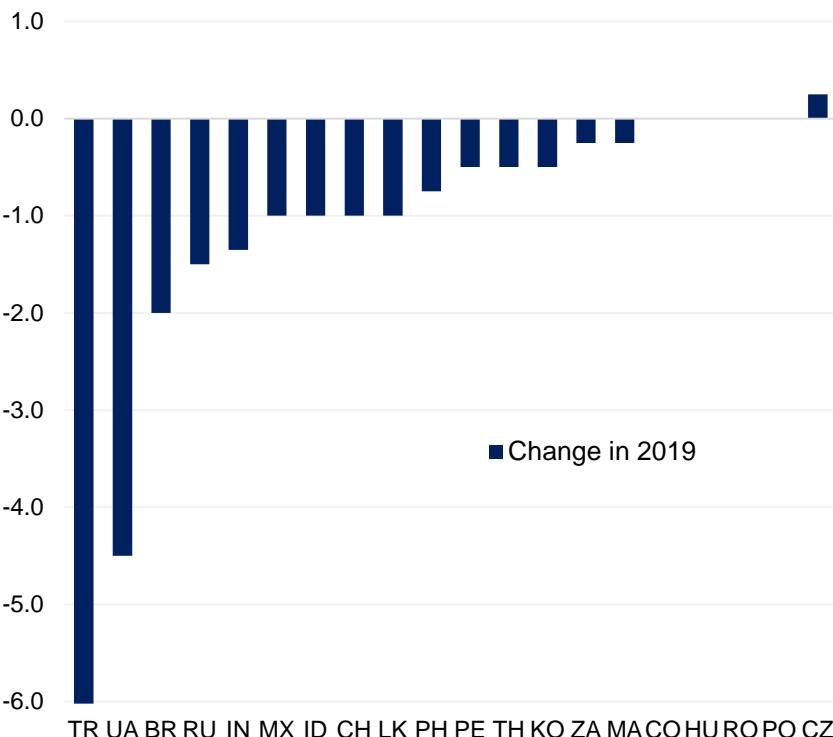


## Monetary Easing Has Been Significant

- Central banks globally enacted monetary easing in 2019 as growth softened and hikes from 2017-18 were unwound. But just as the easing cycle looked as if it would stabilize, the 2020 shock kicked in.
- Comparing policy rates to post-GFC lows suggests central banks can go lower, particularly where inflation is benign.

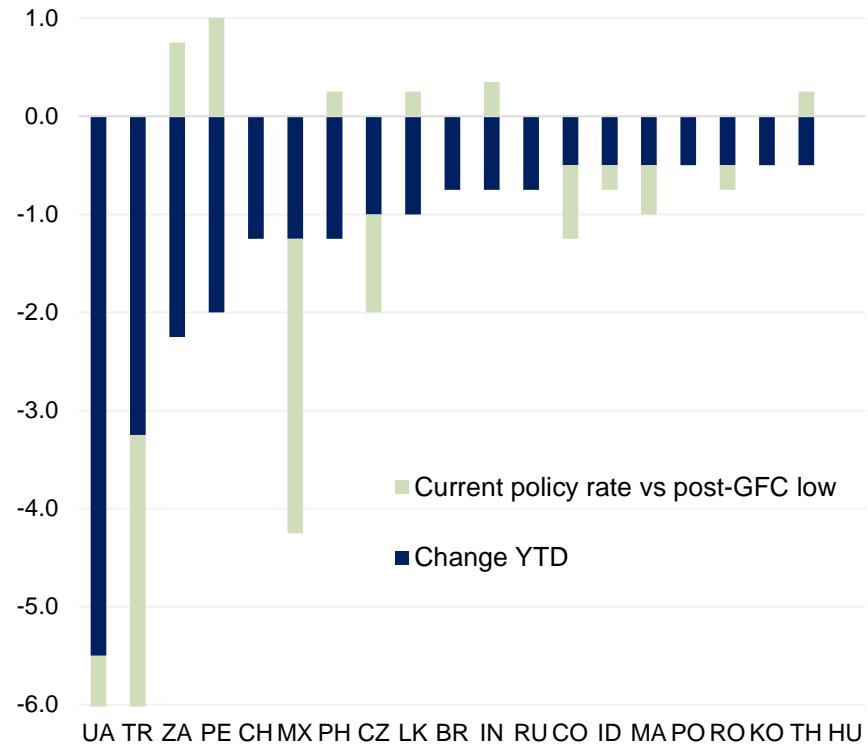
### Monetary Easing was Significant in 2019....

% change in policy rate, 2019



### ...And 2020 Shocks Have Continued the Trend

% change in policy rate, 2020 YTD





## EM Central Banks' Potential for Policy Easing

Countries with less concerns about FX weakness, a better Current Account starting point, higher Real Yields and better FX Reserve cover, may have more monetary policy flexibility to deal with shocks.

**Scaled Macro Indicators:** Higher score is better performance in the indicator

Country	Trade Weighted FX (Current vs 10yr Avg %)	Current Account Balance (% GDP, 2019)	Real Yield (5yr Yield less Avg Inflation)*	External Vulnerability (2020f)**	AVERAGE	Policy Rate (%)	Policy Rate Change YTD (%)	Post-GFC Low in Policy Rate (%)	Possible Further Easing Capacity (Estimate)
Thailand	10.0	10.0	2.8	9.3	8.0	0.75	(0.50)	0.75	75 bps
Russia	2.8	7.8	6.9	10.0	6.9	6.00	(0.25)	5.50	50-75 bps
Philippines	7.8	4.1	4.8	9.8	6.6	3.25	(0.75)	3.00	75-100 bps
Peru	8.9	2.9	2.9	9.9	6.2	2.25	(1.00)	1.25	75-100 bps
Malaysia	6.8	7.0	4.6	5.6	6.0	2.50	(0.50)	2.00	50 bps
Indonesia	5.5	1.9	7.5	8.5	5.8	4.50	(0.50)	4.25	75-100 bps
Mexico	3.3	4.0	6.6	9.0	5.7	6.50	(0.75)	3.00	50-100 bps
S. Africa	3.7	1.6	10.0	5.8	5.3	5.25	(1.25)	5.00	75-100 bps
India	6.6	2.9	3.4	8.0	5.3	5.15	-	4.75	25-50 bps
Brazil	3.6	1.9	6.2	8.9	5.2	3.75	(0.75)	3.75	50 bps
Poland	7.5	5.1	0.0	7.2	5.0	1.00	(0.50)	1.00	25 bps
Colombia	3.6	0.5	7.0	6.9	4.5	4.25	-	3.00	25-75 bps
Hungary	6.5	3.6	0.0	5.8	4.0	0.90	-	0.90	50 bps
Romania	8.3	0.0	3.4	3.5	3.8	2.50	(0.50)	1.75	25 bps
Chile	5.5	1.6	1.1	6.2	3.6	1.00	(0.75)	0.50	50 bps
Turkey	0.0	5.1	4.8	0.0	2.5	9.75	(2.25)	4.50	No room

\* Real Yields are 5yr nominal bond yield less average inflation for 2020-21f

\*\* External Vulnerability = Short term Liabilities / FX Reserves

Source: Moody's, Morgan Stanley, Bloomberg, Payden & Rygel



# Considering EM Vulnerabilities to the Covid-19 and Oil Shocks

While no metrics can paint the full picture, countries with a lower ratio of reserves to short-term liabilities, and those with greater reliance on oil and tourism-related flows, may be more vulnerable in the current environment.

## Macro Indicators Normalized by Z-score; Higher Z-score signals greater vulnerability

Country	External Vulnerability Indicator	Tourism Receipts (% of GDP)	Oil Exports (% of GDP)	Blended Z-Score
Ecuador	4.50	-0.45	0.28	1.44
Georgia	0.33	2.97	-0.61	0.89
Belize	-0.88	3.98	-0.57	0.85
Azerbaijan	-0.91	0.28	3.07	0.81
Croatia	-0.11	2.67	-0.33	0.74
Angola	-0.71	-0.68	3.23	0.61
Jamaica	-0.38	3.00	-0.83	0.59
Iraq	-1.04	-0.61	3.36	0.57
Belarus	2.28	-0.49	-0.13	0.55
Tajikistan	2.79	-0.75	-0.54	0.50
Lebanon	0.17	1.92	-0.71	0.46
Turkey	1.50	-0.16	-0.24	0.37
Jordan	0.23	1.56	-0.70	0.36
Tunisia	1.33	0.04	-0.34	0.34
Kuwait	-1.01	-0.71	2.66	0.31
Sri Lanka	1.15	0.15	-0.43	0.29
Armenia	0.08	1.06	-0.33	0.27
Saudi Arabia	-0.92	-0.44	2.13	0.26
Argentina	1.22	-0.54	-0.15	0.18
Kazakhstan	-0.90	-0.53	1.89	0.15
Ghana	0.47	-0.50	0.44	0.14
Zambia	1.10	-0.25	-0.45	0.13
Qatar	-0.59	-0.23	1.20	0.13
Malaysia	0.20	0.26	-0.10	0.12
El Salvador	0.67	-0.04	-0.50	0.04
Costa Rica	-0.03	0.44	-0.40	0.00
Ukraine	1.09	-0.57	-0.53	0.00
Mongolia	0.68	-0.11	-0.67	-0.03
Dominican Rep	-0.59	0.89	-0.43	-0.04
Hungary	0.09	0.03	-0.31	-0.06
Colombia	-0.02	-0.46	0.24	-0.08

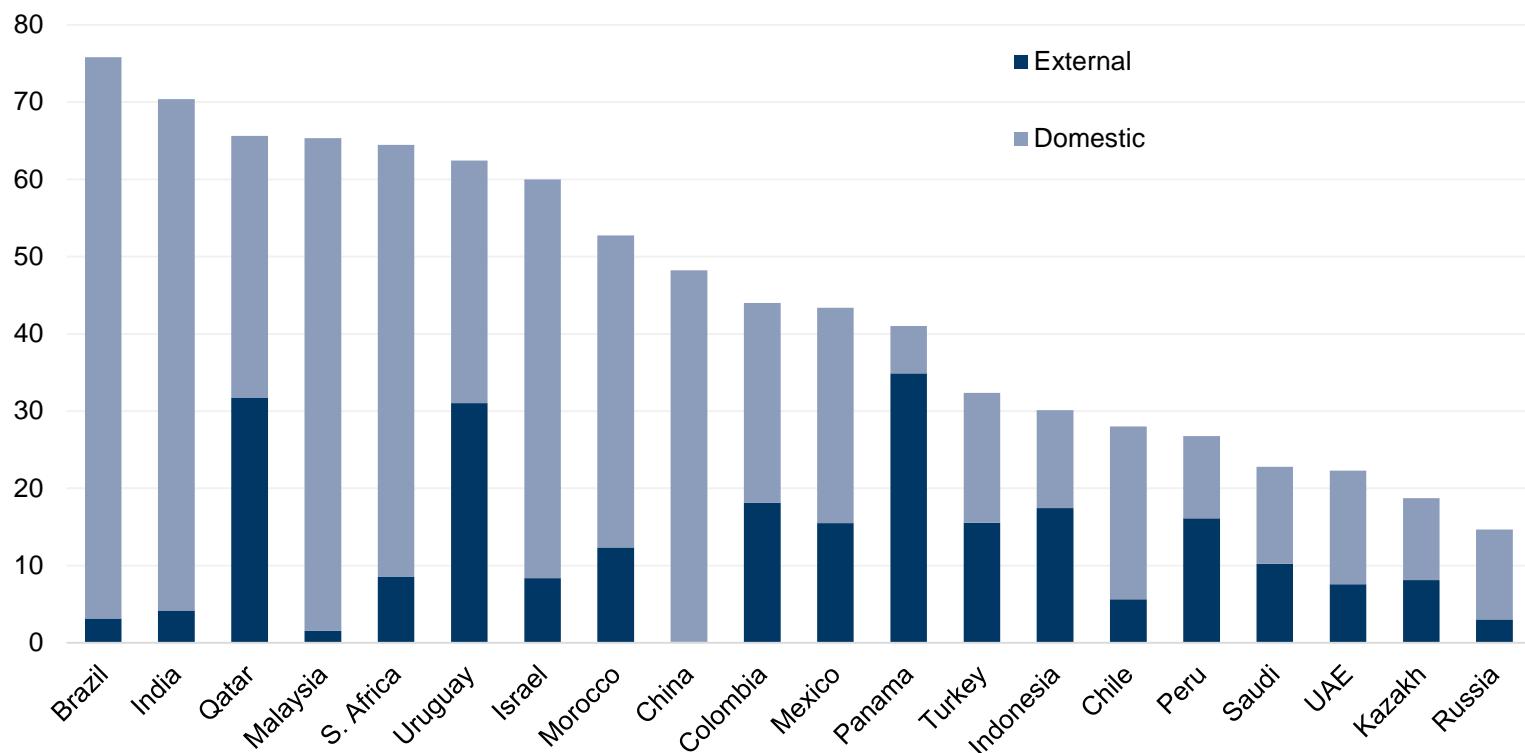
Country	External Vulnerability Indicator	Tourism Receipts (% of GDP)	Oil Exports (% of GDP)	Blended Z-Score
Romania	0.46	-0.51	-0.26	-0.10
Pakistan	0.81	-0.75	-0.46	-0.13
Russia	-0.82	-0.64	1.03	-0.14
Nigeria	-0.60	-0.68	0.77	-0.17
Morocco	-0.38	0.46	-0.60	-0.17
Uruguay	-0.20	-0.03	-0.31	-0.18
Egypt	-0.46	0.10	-0.20	-0.18
Chile	0.41	-0.59	-0.39	-0.19
South Africa	0.02	-0.31	-0.44	-0.25
Cameroon	-0.36	-0.49	0.04	-0.27
Poland	-0.15	-0.32	-0.38	-0.28
Serbia	-0.28	-0.20	-0.40	-0.29
Ethiopia	-0.19	-0.55	-0.32	-0.35
Namibia	-0.25	-0.28	-0.57	-0.37
Panama	-0.75	0.12	-0.51	-0.38
Mexico	-0.55	-0.43	-0.17	-0.38
Suriname	-0.25	-0.46	-0.45	-0.39
Indonesia	-0.54	-0.47	-0.29	-0.43
Paraguay	-0.21	-0.61	-0.52	-0.44
India	-0.41	-0.58	-0.35	-0.44
Brazil	-0.57	-0.71	-0.07	-0.45
Kenya	-0.56	-0.54	-0.37	-0.49
Philippines	-0.76	-0.30	-0.42	-0.49
Peru	-0.79	-0.44	-0.27	-0.50
Bolivia	-0.82	-0.39	-0.32	-0.51
Honduras	-0.53	-0.19	-0.82	-0.51
China	-0.61	-0.72	-0.30	-0.55
Guatemala	-0.85	-0.40	-0.40	-0.55
Mozambique	-0.70	-0.46	-0.77	-0.64
Senegal	-0.89	-0.38	-0.71	-0.66



## External Debt Contained Among Large Emerging Markets

Systemically important Emerging Markets typically have a low share of external debt at well below 20% of GDP. Exceptions include Qatar (includes debt of large SOEs), Uruguay (relatively small GDP and long-tenor USD debt), and Panama (dollarized economy).

### General Government Debt % of GDP, with External vs Domestic Breakdown, 2019e\*



\* External debt is more widely reported than foreign currency debt; this metric is relatively conservative as it includes domestic currency debt held by non-residents  
 Source: Fitch, Moody's

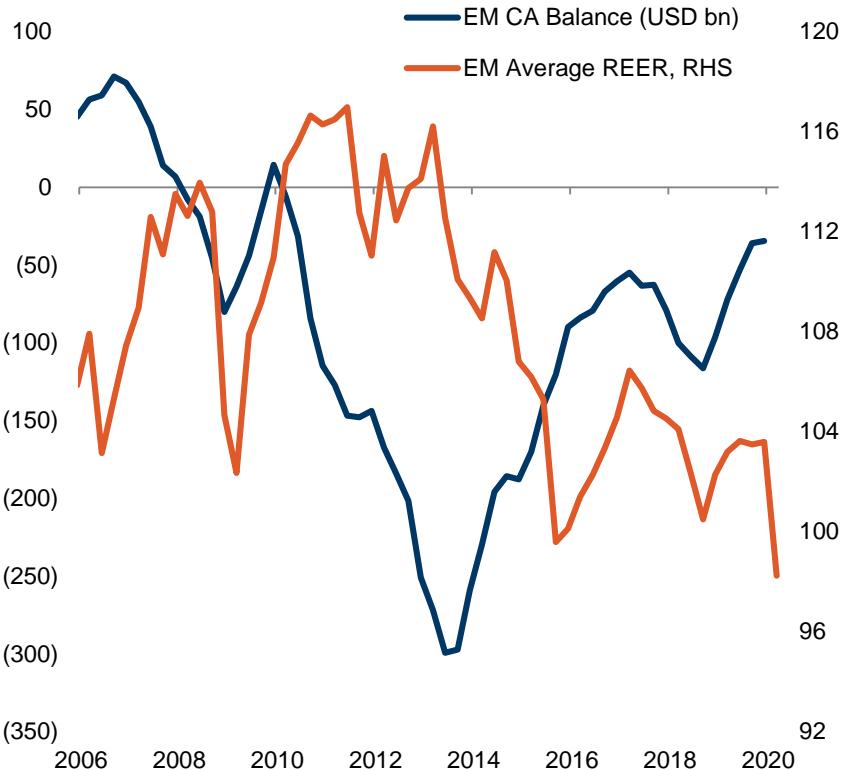


## External Positions Healthy In Most Emerging Market Countries

- EM current account imbalances are limited; more problematic countries like Turkey have made significant adjustments.
- Healthier balance-of-payments have helped EMs to maintain strong Foreign Exchange reserve positions. Prudent management of reserves (i.e., limited intervention) is a positive long-term anchor for EM economies.

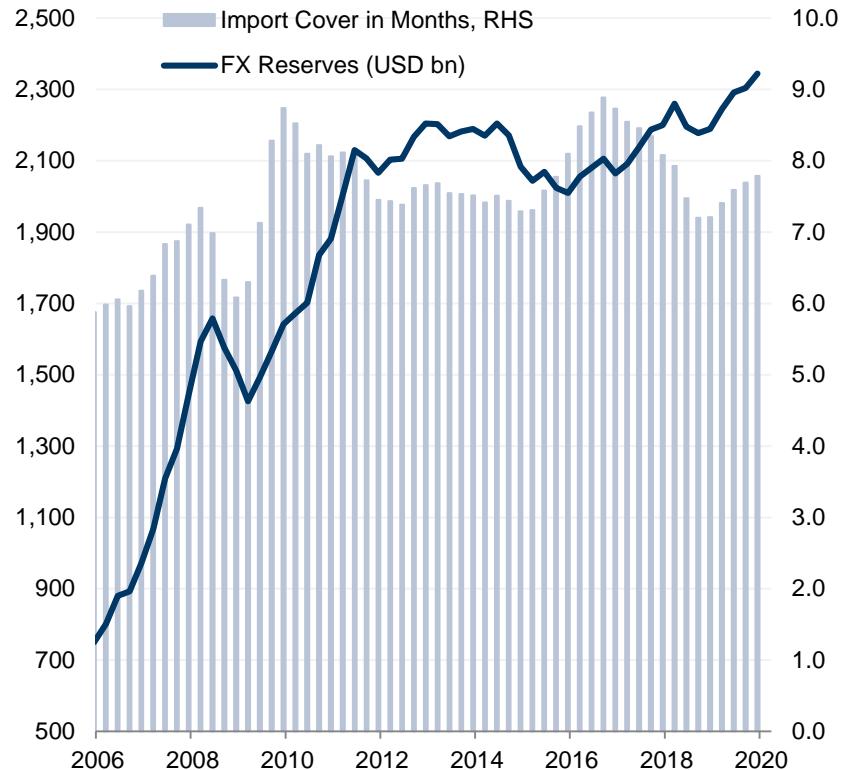
### Current Account Balance vs REER

16 GBI-EM Countries (ex-China)



### Foreign Exchange Reserves and Import Cover

16 GBI-EM Countries (ex-China)



Source: Haver, BIS

Source: Haver, Bloomberg

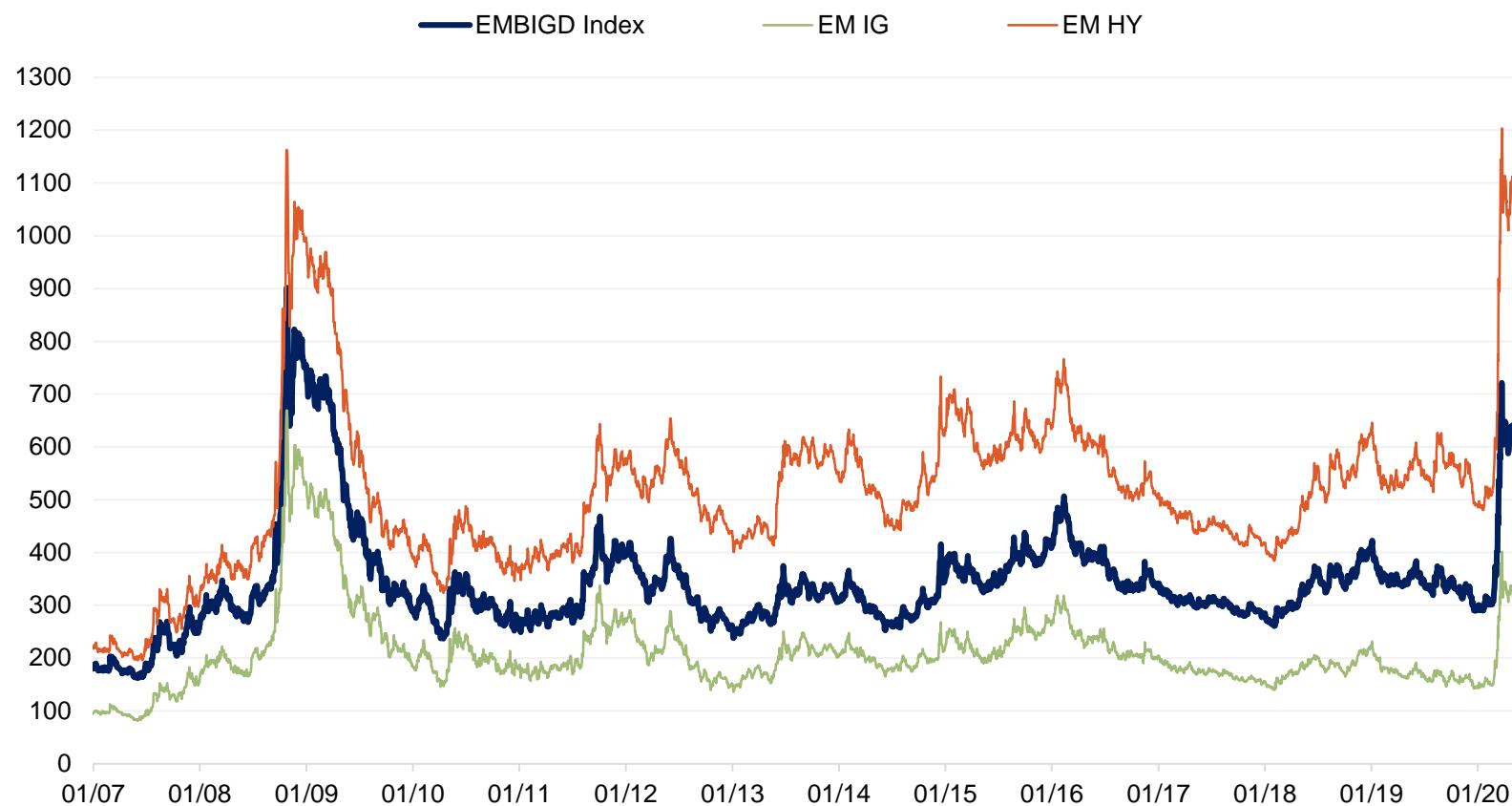


## EMD Spreads Widen to Levels Not Seen Since GFC

Spreads on EM hard currency debt reached their widest levels since the financial crisis in March 2020. Significant differentiation has opened up between investment grade and high yield issuers, however.

### EMBI Global Diversified Spreads

Basis points

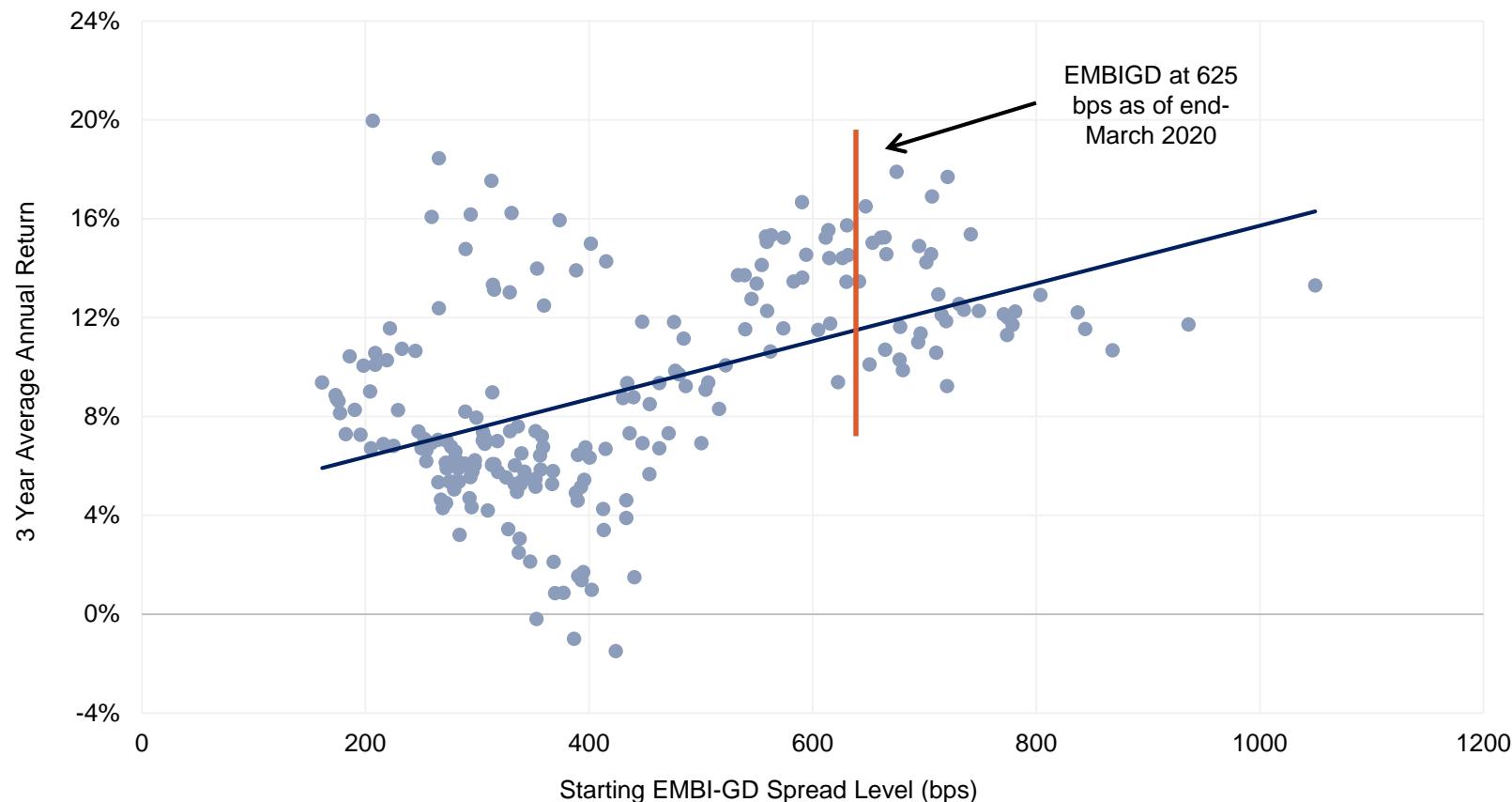




## From End-March Starting Point, EM Return Prospects are Strong

Events of spread widening are typically excellent entry points into the asset class, with the carry and spread reversion providing two favorable drivers for returns.

### Starting Spread Level (bps) and 3 year Average Annual Return Experience (%)

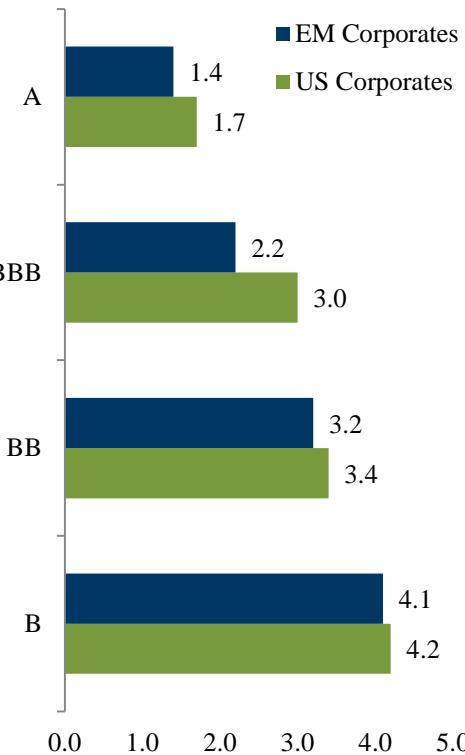




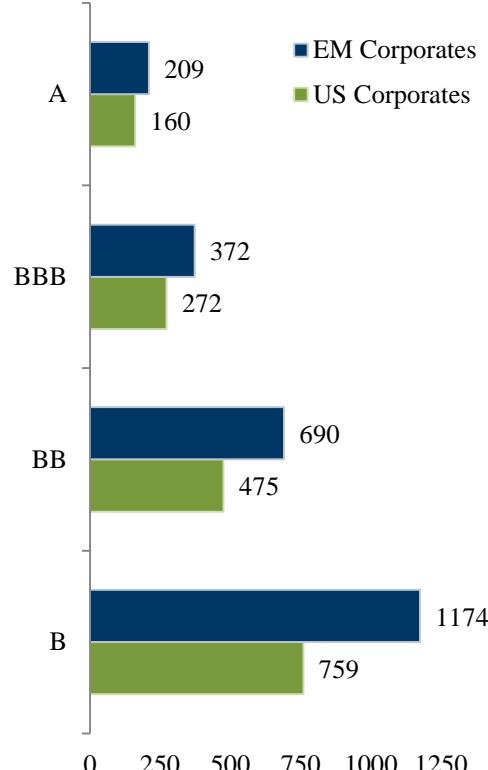
## Corporate Emerging Market Debt Relative Valuations are Favorable

- EM Corporates offer high relative yields when considering the amount of low-yielding DM debt.
- Relative to U.S. Corporates, EM Corporates provide incremental spread with similar to better fundamentals.

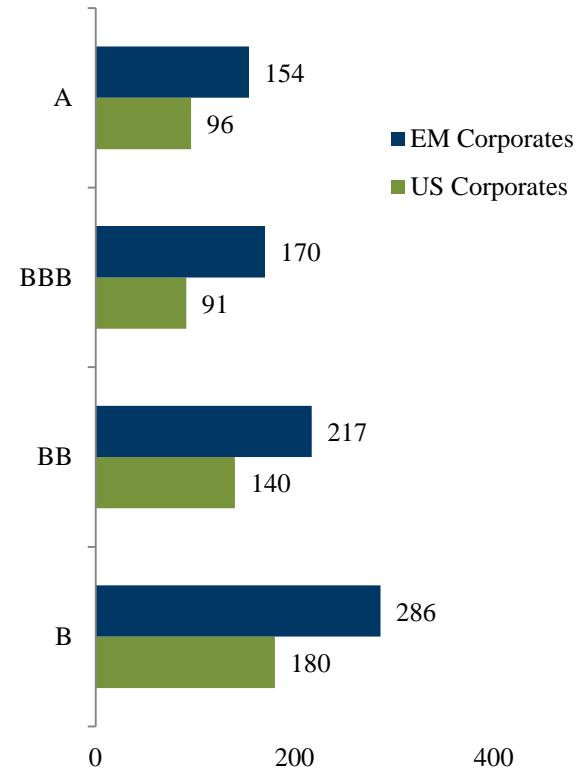
Net Leverage (x)



OAS (bps)



Spread Per Turn (bps/x)



Net leverage as of 31 Dec 2019; Spreads as of 15 May 2020

Source: BofA



## Appendix

- Payden ESG Approach
- Biographies



# Environmental, Social, and Governance (ESG) Investing at Payden & Rygel

**ESG Mission Statement:** Payden & Rygel's environmental, social, and governance (ESG) strategy aims to discover and monitor those risks and opportunities which do not appear in traditional financial statements that we believe will be material to future investment performance.

## Three Key Beliefs

1. ESG is not an ethical or moral overlay which is secondary to the investment process.
2. ESG factors are relevant in credit and equity analysis to the extent they are likely to affect investment performance.
3. Consistent and comparable ESG data are essential for a responsible determination of credit risk and materiality.

## Two Pillars of ESG Strategy at Payden & Rygel and the Resources We Use

### Security Level Integration

- PRI and SASB industry standards ensure consistent and material ESG analysis
- Integrate PRI and SASB industry standards and Payden views into our sovereign and credit scorecards
- Engagement with policymakers and company management to promote better disclosure and to understand ESG risks

### Tools we use

- MSCI ESG research
- SASB Industry Standards
- IFIs, NGOs, Universities

### Portfolio Level Integration

- Managing/monitoring ESG risks and opportunities from the top down
- Use standardized scoring system to ensure comparability
- Customized indicator-level or score-level disclosure where available
- Balancing ESG characteristics with traditional portfolio

### Tools we use

- MSCI ESG research
- Bloomberg PORT
- Aladdin
- Glass Lewis



# ESG in the EM Sovereign Investment Process

ESG considerations are given an explicit weight and score in the Payden Country Scorecard

## Governance – influences a country's path to or away from sustainable, productive growth

**Examples: Ukraine↑ Venezuela↓**

- An understanding of internal political dynamics is key to analyzing governance trends
- Our sovereign research process has always recognized the value of a range of various governance factors for fundamental analysis. We prefer countries with strong/improving:
  - **Institutional efficiency:** Central bank credibility and finance ministry independence
  - **Rule of law:** Extent executive power is limited by the strength of legislative and judicial branches
  - **Policy trajectory:** Prospects for greater fiscal and monetary responsibility
  - **Anti-corruption focus:** Sovereigns that score high on efforts against illicit transactions

## Social – often unfold slowly but can create significant fundamental shocks

**Example: 2019 protest movements (Chile, Ecuador, Iraq, Lebanon)**

- Cautious on countries where conditions signal potential unrest and thus disruption in the macroeconomic and/or political environment
- Factors include political freedom, access to education, and employment opportunity

## Environmental – factors have both short- and long-term economic and political consequences

**Examples: India's monsoon season, drought in Zambia, ongoing environmental reforms in China**

- Favor countries with diversified energy production and energy consumption proportionate to the size of the economy
- Factors include pollution, water availability, climate change



# Payden's UN PRI Engagement

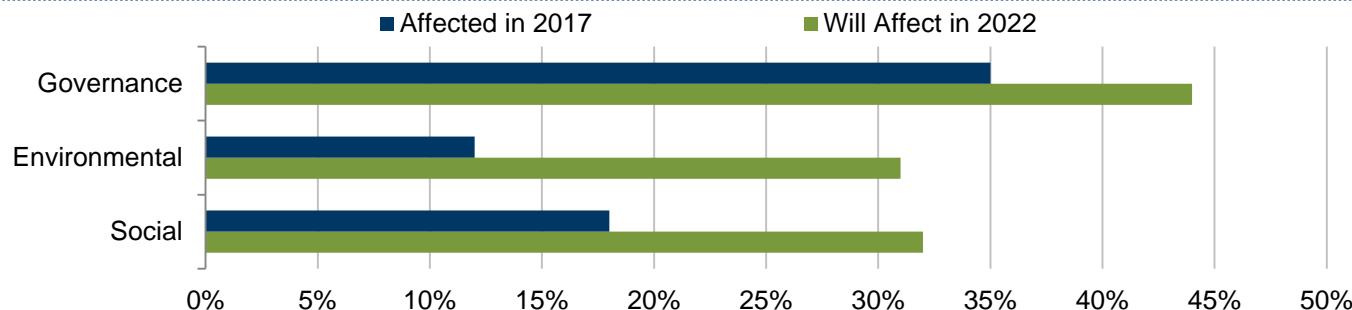
## PRI Sovereign Working Group Publishes ESG Integration Framework

- The UN PRI (Principles for Responsible Investment) recently presented *A Practical Guide To ESG Integration in Sovereign Debt* at the September 2019 PRI in Person conference in Paris. Payden & Rygel was a proud member of PRI's Sovereign Working Group which collaborated to produce this document.
- The PRI has been working with the Sovereign Working Group members since September 2018 to develop this guide to assist investors in integrating ESG factors into the research and analysis of sovereign issuers and the construction of sovereign debt portfolios.

## Rationale for the Guide

- Members of the working group, including Payden & Rygel, shared their thoughts and experience in:
  - How to best integrate ESG principles into an investment process.
  - What factors are most material to sovereign bonds.
  - Identifying best sources of data for ESG sovereign analysis.
  - How to effectively engage with sovereign issuers.
  - Understanding differences between EM and DM markets.
  - Practical examples and case studies of how integration techniques work in practice.

## Impact of ESG Issues on Security Prices: Market Participants' Views\*



\* Percentages represent respondents who answered 'often' or 'always' in a 2018 CFA Institute and PRI ESG integration study, which surveyed 1,100 practitioners globally (PRI-CFAI study).



# ESG in the EM Sovereign Investment Process: Data Can be Standardized but Must be Interpreted

- We create a percentile ranking of countries across the investable universe to assist in our assessment of absolute and relative ESG risk. This system utilizes a custom set of ESG data, referencing a dozen sources, that we feel are most relevant to our investment process.
- We look for ESG data that is comparable across 80+ emerging markets, and further focus on relative ESG percentile ranks within peer groups, such as by credit rating or within a region.

Country	ESG Percentile	Country	ESG Percentile	Country	ESG Percentile	Country	ESG Percentile
Lithuania	82%	Jamaica	59%	China	50%	Guatemala	33%
Latvia	81%	Oman	58%	Dominican Republic	49%	Kenya	32%
Slovakia	78%	Armenia	58%	Morocco	48%	Uzbekistan	31%
Hong Kong	78%	Serbia	57%	Mongolia	48%	Zambia	30%
Israel	76%	Belarus	57%	Indonesia	47%	Honduras	29%
Uruguay	75%	Peru	55%	Ecuador	47%	Gabon	28%
Poland	75%	Kuwait	55%	Ukraine	46%	Côte d'Ivoire	28%
Chile	75%	Colombia	55%	Sri Lanka	46%	Papua New Guinea	27%
Costa Rica	73%	Tunisia	55%	Azerbaijan	44%	Tanzania	26%
Hungary	72%	Russia	54%	El Salvador	44%	Tajikistan	26%
United Arab Emirates	72%	Saudi Arabia	54%	Ghana	43%	Venezuela	26%
Croatia	71%	Kazakhstan	54%	Paraguay	42%	Pakistan	21%
Romania	71%	Mexico	53%	Philippines	42%	Nigeria	21%
Qatar	68%	Thailand	53%	Rwanda	38%	Ethiopia	19%
Malaysia	68%	Brazil	51%	Lebanon	38%	Mozambique	16%
Bulgaria	67%	South Africa	51%	Vietnam	38%	Angola	16%
Georgia	62%	Namibia	50%	India	38%	Cameroon	15%
Trinidad and Tobago	62%	Jordan	50%	Senegal	36%	Iraq	15%
Panama	61%	Turkey	50%	Egypt	34%		
Argentina	60%	Bahrain	50%	Bolivia	34%		

Source: Various Publicly Available Surveys, Payden & Rygel



## ESG in the EM Sovereign Investment Process – In Practice

- ESG indicators for sovereigns are inherently backward-looking and often do not provide clear investment implications. Practical application requires a level of judgment and pragmatism.
- We emphasize a forward-looking component that introduces subjectivity but can be compared across countries.

Factor	Sub-Factor	Analysis	Angola (B3/S, B-/N, B/N)		3.0	
			Weight	Score		
Growth	GDP Trajectory	▪ GDP contraction (-1.7% in 2018; ~0% in 2019f) has remained in place, but should improve into modest positive territory in coming quarters. Steady oil production declines are showing signs of stabilization as the still-recent liberalization of the sector begins to bear fruit.	10%	3.0		
	Banking System					
Monetary Policy	Factor	Sub-Factor	Analysis		Weight	
	Governance	Institutional strength	▪ President João Lourenço has surprised positively by turning the macro/political narrative. Dos Santos era officials are out of the system and there are efforts to tackle corruption even within the dominant MPLA party. The gov't has pushed through competition and investment laws and is working to restructure SOEs, particularly Sonangol. Privatizations/asset sales and oil block licenses should benefit the economy medium-term. However, vested interests prevail in the state-led/oligopolist system and institutions are starting from a very weak base.		20%	
		Corruption				
		Regime stability				
Social Environment	Social/ Environmental	Rule of law				
		Human capital	▪ The level of human development is poor relative to GDP per capita; inequality and poverty are high. ▪ Though space for dissent has opened up, repression of political/press freedoms remain a structural concern. Employment creation has struggled given the government's inability to diversify the economy. Combining this with rising cost of living creates possibilities for social unrest.		10%	
		Political freedom				
		Employment				
Government		Environment policy	▪ Environmental performance is mixed; environmental health ranks poorly but there have been strides in managing energy inputs and stopping degradation of environmental resources, while Angola is middle of the pack in climate risk.			



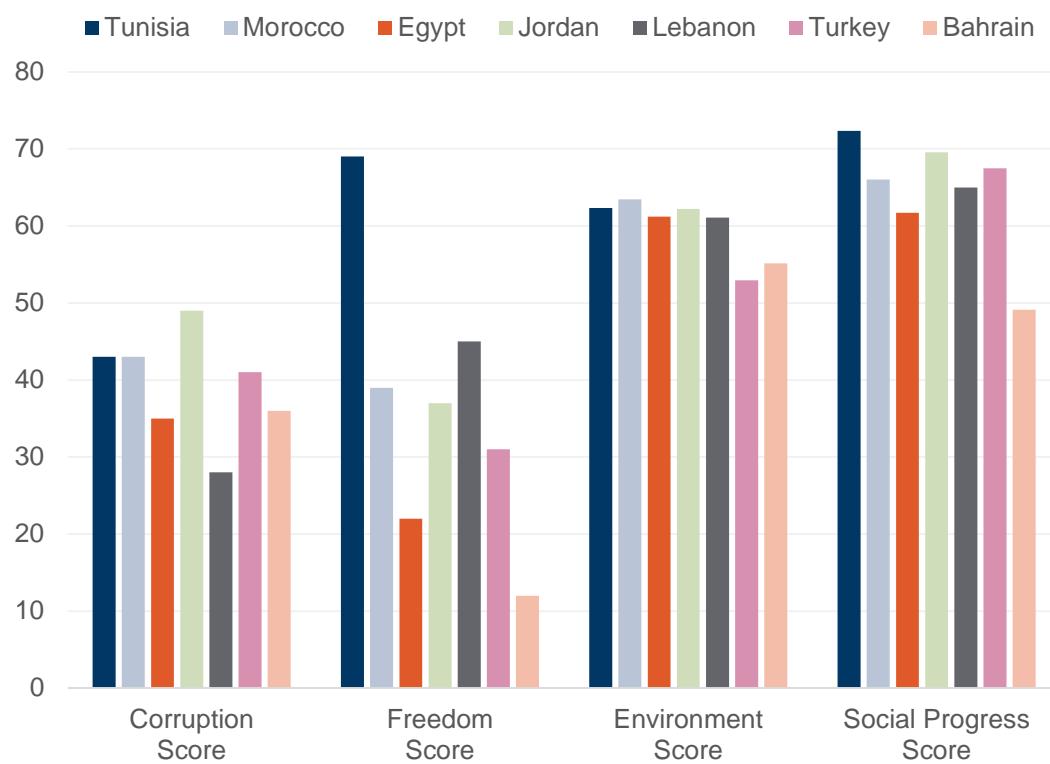
## ESG in the EM Sovereign Investment Process – Tunisia Peer Analysis

- Sovereign investment opportunities should be seen in a relative context. While Tunisia's ESG metrics do not stand out on their own, they are solid within the 'B' credit rating peer group.
- Hitting in on regional peers, Tunisia also stacks up favorably. This is notable next to Egypt, a popular holding among EMD investors where ESG appears weaker, and Morocco, which has a higher credit rating.

### Tunisia: Favorable ESG for Credit Quality

Country	ESG Percentile	Average Credit Rating
Costa Rica	73%	B
Jamaica	59%	B
Belarus	57%	B
<b>Tunisia</b>	<b>55%</b>	<b>B</b>
Jordan	50%	B
Bahrain	50%	B
Mongolia	48%	B
Ecuador	47%	B
Ukraine	46%	B
Sri Lanka	46%	B
El Salvador	44%	B
Ghana	43%	B
Rwanda	38%	B
Egypt	34%	B
Kenya	32%	B
Gabon	28%	B
Côte d'Ivoire	28%	B
Papua New Guinea	27%	B
Tanzania	26%	B
Tajikistan	26%	B
Pakistan	21%	B
Nigeria	21%	B
Ethiopia	19%	B
Angola	16%	B
Cameroon	15%	B
Iraq	15%	B

### Tunisia: Favorable ESG for Region (Index/Score)





## EMD Team Biographies



**Kristin Johnson Ceva, PhD, CFA®**  
Managing Director

1998 – Joined Payden & Rygel

Kristin Ceva, PhD, is a Managing Director at Payden & Rygel. Kristin is a member of the firm's Investment Policy Committee and is a Senior Portfolio Manager directing the firm's emerging market debt strategies. She also is a frequent speaker at industry forums, focusing on topics related to international investing and emerging markets.

Prior to joining Payden & Rygel, Kristin worked as a consultant for Deloitte & Touche, and with a number of international policy institutes including: the Pacific Council on International Policy, the Center for U.S.-Mexican Studies and the North America Forum at Stanford University.

Kristin serves as board member for EMpower, a non-profit organization founded by emerging markets financial professionals to support at-risk youth, and is on the California Committee of Human Rights Watch.

Kristin earned a PhD from Stanford University in Political Science with an emphasis on international political economy. She was a Fulbright Scholar based in Mexico City. Kristin has completed extensive economic and political research on emerging markets and is fluent in Spanish. She received a BBA in Finance from Texas A&M University.



**Arthur Hovsepian, CFA®**  
Director

2004 – Joined Payden & Rygel

Arthur Hovsepian is a Director and Emerging Market Debt Strategist at Payden & Rygel. He heads up Asia sovereign research and is also the lead local market strategist with a focus on Asia and Africa.

Prior to joining Payden & Rygel, Arthur was a portfolio associate with Pacific Investment Management Company in the global fixed income group, where he was responsible for the currency risk management process for global portfolios.

Arthur is a member of the CFA® Institute and the CFA® Society of Los Angeles. He received an MBA from The UCLA Anderson School of Management and a BS in Economics and Statistics from University College London.



**Damon C. Eastman, CFA®**  
Director – Emerging Market Strategist

2004 – Joined Payden & Rygel

Damon Eastman, CFA®, is a Director and Senior Strategist in the emerging markets fixed-income group at Payden & Rygel. He heads up the portfolio architecture function for emerging market debt portfolios, including risk monitoring and performance attribution. He also carries out analysis which facilitates decision making for asset allocation and trading of emerging market portfolios.

Eastman is fluent in Spanish and has experience with global clients having lived and worked in several countries.

Damon Eastman holds the Chartered Financial Analyst designation and is a member of the CFA® Society of Los Angeles. He earned an MS in Management and a Graduate Diploma in Finance from Boston University – Brussels International Graduate Center. Eastman also received a BA in International Relations with a focus on international economics from Tufts University in Medford, Massachusetts.



**Vladimir I. Milev, CFA®**  
Senior Vice President - Emerging Market Strategist

2003 – Joined Payden & Rygel

Vladimir Milev, CFA®, is a Senior Vice President and an emerging market strategist. He heads up sovereign research in Central and Eastern Europe, the Middle East and Africa.

Previously, Milev was a Financial Investment Analyst focusing on Central and Eastern Europe with Metzler/Payden, a 50/50 joint venture between Payden & Rygel and Bankhaus Metzler.

Vladimir Milev holds the Chartered Financial Analyst ® designation and the Financial Industry Regulatory Authority series 6 and 63 licenses. He earned an MSc in the Political Economy of Europe from the London School of Economics and Political Science and a BA in Diplomacy and World Affairs and Economics from Occidental College in Los Angeles, California. He is a member of the CFA Institute and the CFA Society of Los Angeles.



## EMD Team Biographies



### Zubin Kapadia, CFA®

Senior Vice President - Corporate Strategist

2017 – Joined Payden & Rygel

Zubin Kapadia is a Senior Emerging Markets Corporate Strategist. Zubin has extensive experience analyzing corporate credit across high yield, distressed, levered loans and investment grade credit as well as experience investing in illiquid asset classes including private equity and private credit.

Prior to joining Payden & Rygel, Zubin was a Senior Vice President in the Special Situations Group at PIMCO and started his career as a high yield research analyst at J.P.Morgan in New York.

Zubin earned an MBA degree from the University of Chicago Booth School of Business with concentrations in Analytic Finance and Economics and a BBA from the University of Michigan Ross School of Business.



### Ehsan I. Iraniparast, CFA®

Senior Vice President - Emerging Market Country Analyst

2012 – Joined Payden & Rygel

Ehsan Iraniparast is a Senior Vice President and Emerging Market Country Analyst focused on Central and Eastern Europe, Middle East and Africa (CEEMEA) sovereign risk.

Prior to joining Payden & Rygel he worked as an emerging market debt research associate at Wellington Management Company, analyzing a broad spectrum of countries and making trade recommendations, as well as at the US Treasury covering Southeast Asia.

Ehsan is a member of the CFA® Institute. He received a Master's in International Affairs from Columbia University's School of International and Public Affairs and a BS in Business Administration in Finance from Northeastern University.



### Alexander R. Leifer King, CFA®, CAIA

Vice President - Emerging Market Country Analyst

2010 – Joined Payden & Rygel

Alexander Leifer King is a vice president and emerging market country analyst focused on sovereign risk in Asia and Latin America.

Prior to his current position, Leifer King was a portfolio analyst in the emerging markets group. He was responsible for sovereign risk assessment along with various additional aspects of portfolio analysis for emerging market bonds.

Alexander Leifer King holds the Chartered Financial Analyst and the Chartered Alternative Investment Analyst designations. He earned an MBA from IE Business School in Madrid, Spain, and a BA in Diplomacy & World Affairs and Spanish Literary Studies from Occidental College in Los Angeles, California. He also studied political science in Argentina at the University of Buenos Aires and is fluent in Spanish.



### Alexis Roach, CFA®

Vice President - Emerging Market Country Analyst

2013 – Joined Payden & Rygel

Alexis Roach is a Vice President in the Emerging Market Group focused on sovereign risk in Latin America and the Caribbean.

Before joining Payden & Rygel, Alexis worked as a Senior Macroeconomic Analyst at the Federal Reserve Bank of New York covering Latin American sovereigns as well as commodities. She also has previous experience at the World Bank and Organization of American States (OAS).

Alexis Roach earned a MA degree with a concentration in Latin American Studies from Johns Hopkins University's School of Advanced International Studies. She received a BA in International Relations from the University of Pennsylvania and studied abroad at Torcuato Di Tella University in Argentina. Roach speaks Spanish fluently.



## EMD Team Biographies



### Jason Katzen, CFA®

Vice President - Emerging Market Portfolio Analyst

2017 – Joined Payden & Rygel

Jason Katzen is an Emerging Markets Portfolio Analyst focused on portfolio architecture, risk management, and performance attribution.

Prior to joining Payden & Rygel, he worked at Toyota Financial Services where he managed the company's short-duration fixed income portfolio and oversaw all insurance investments. He also has previous experience in management consulting for R&R Investments.

Jason Katzen earned an MBA degree from the University of California, Irvine and a BA in Economics and Political Science from the University of California, Berkeley.



### Alec B. Small, CFA®

Vice President - Emerging Market Portfolio Analyst

2017 – Joined Payden & Rygel

Alec Small is an Emerging Market Portfolio Analyst focused on trading.

Prior to joining Payden & Rygel, Small worked as an analyst at Toyota Financial Services where he analyzed investment opportunities and executed trades for Toyota's internal fixed income investment portfolio. He also has previous experience at Wedbush Securities.

Alec Small received a MFE from the UCLA Anderson School of Business and a BS from the Marshall School of Business at the University of Southern California.



### Alex Levine, CFA®

Associate - Emerging Market Portfolio Analyst

2018 – Joined Payden & Rygel

Alex Levine is an Emerging Market Portfolio Analyst focused on trading.

Levine joined Payden & Rygel in September 2018 in a business development capacity focusing on all the firm's strategies including Emerging Markets. He began his financial career at Merrill Edge, where he assisted clients with equity, fixed income and options trades, working on a team that handled all client fixed-income and higher risk equity/options transactions.

Levine received a MA in Higher Education from the University of Arizona and a BA in Political Science from the University of Michigan - Ann Arbor. He has passed all three levels of the CFA Program and may be awarded the charter upon completion of the required work experience.



## Client Portfolio Manager Biographies



### Elizabeth M. Westvold, CFA®

Director

2011 – Joined Payden & Rygel

Elizabeth M. Westvold, CFA, is a Director at Payden & Rygel. Based in the Boston office, Beth serves as a Senior Client Portfolio Manager for U.S. institutional clients including public plans, corporations, universities and endowments and insurance companies.

Prior to joining Payden & Rygel, Beth was a managing director in BlackRock's global client group for seven years, responsible for developing and maintaining relationships with institutional clients. Prior to 2005, she was a managing director and fixed income portfolio manager with State Street Research & Management Co. and earlier worked in fixed income strategies for Harvard Management Company.

A member of the CFA Boston Society, Beth holds the Chartered Financial Analyst designation. Beth is president and an investment committee member of the Trustees of Donations to the Episcopal Church. She earned an MBA from the Tuck School of Business at Dartmouth College and a BA, cum laude, in economics and biology from Middlebury College.



### Lisa A. Redding

Vice President

2010 – Joined Payden & Rygel

Lisa Redding is a Vice President at Payden & Rygel. Based in the firm's Boston office, she works with portfolio managers to implement investment policy and strategy needs of institutional clients.

Prior to joining Payden & Rygel, Lisa was Research Coordinator at hedge fund Kaintuck Capital Management. She held various roles over seven years within research and trading, and headed the firm's marketing efforts. Prior to that Lisa worked within Ernst & Young LLP's tax practice, both domestically and abroad.

Lisa Redding holds the FINRA series 6 and 63 licenses. She earned a BS in Business Administration from American University in Washington, D.C. with concentrations in Finance and International Economics.



PIMCO

## State of Connecticut Retirement Plans & Trust Fund

An introduction to Emerging Markets at PIMCO:  
June 2020

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## Disclosures

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### **IMPORTANT NOTICE**

Please note that the following contains the opinions of the manager as of the date noted, and may not have been updated to reflect real time market developments. All opinions are subject to change without notice.

## Agenda

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**1**/PIMCO's EM Platform

**2**/Performance and Positioning

**3**/Outlook



## PIMCO's EM Platform

# PIMCO's Emerging Markets Platform

At the forefront after more than 25 years of market leadership

PIMCO

PIMCO'S Emerging Markets Platform

- Founded in 1971
- 17 global offices with 821 investment professionals (2,875 total employees)
- Assets under management: \$1.78 trillion<sup>1</sup>
- Experienced – Average experience of investment professionals: 15 years; senior professionals: 21 years

**\$30 Billion\***  
in 3<sup>rd</sup> party assets under management

## Capabilities:

Sovereign, quasi-sovereign and corporates, denominated in external and local currencies, transacted in public markets and privately

Specialists in EM Debt

**29**

Dedicated portfolio managers with average investment experience of 16 years

**30**

Credit research analysts covering quasi-sovereign and corporate issuers from emerging markets

**50+**

Country research trips conducted on average per year

### External Sovereign

Since 1997

### Local Sovereign

Since 2005

### Corporates

Since 2009

### Private Credit

Since 2017

As of 31 March 2020. SOURCE: PIMCO.

\* Excludes assets managed on behalf of PIMCO's parent's affiliated companies.

<sup>1</sup>PIMCO manages \$1.78 trillion in assets, including \$1.37 trillion in third-party client assets as of March 31, 2020. Assets include \$15.3 billion in assets of clients contracted with Gurtin Fixed Income Management, LLC, an affiliate and wholly-owned subsidiary of PIMCO. Effective March 31, 2012, PIMCO began reporting the assets managed on behalf of its parent's affiliated companies as part of its assets under management.

Refer to Appendix for additional investment strategy and risk information.

# PIMCO's Edge in Emerging Markets

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## Resources

Ability to

- Thoroughly cover the entire opportunity set
- Use bargaining power to extract concessionary pricing
- Generate bespoke transactions via proprietary relationships
- Exploit efficiencies from specialization



## Global Macroeconomic Insights

What the Fed does matters for emerging markets, and the EM team benefits from firm-wide analysis and insights of the global monetary context

## Quantitative Risk Assessment

Heavy use of proprietary quantitative analytics to measure normal and non-normal risk, limit concentrations and de-sensitize portfolios to extreme events

Refer to Appendix for additional investment strategy and risk information.

# Investment Philosophy

Performance through discipline



## No single approach is always best

Use multiple, complimentary frameworks:

- top-down & bottom-up
- fundamental & quantitative
- thematic & opportunistic



## Respect hidden risk

Avoid concentrations and scale each individual risk to limit the influence of tail events and unknown unknowns



## Don't follow the crowd

Focus on proprietary relationships and bespoke transactions with better outcome potential

Refer to Appendix for additional investment strategy and risk information.

# The team

Well-resourced, specialized and with a global footprint

## Managing Director, Head of Emerging Markets

### Pramol Dhawan

Geographic Breakdown	Research & Strategy	External Markets (Sovereign and Corporate)	Local Markets	Private Credit
London (13)	Gene Frieda  Lupin Rahman	Yacov Arnopolin  Nikolas Skouloudis  Kofi Bentsi  Michal Bar	Brian Holmes	Michael Davidson  Mahamadou Coulibaly  Boris Erenburg  Dimitris Tsitsiragos  Ashu Mehta  Lida Weninger*
Newport Beach (9)	Vinicius Silva  Ran Duan	Pramol Dhawan  Javier Romo  Spyros Michas	Ismael Orenstein  Brendon Shvetz  Mihaela Yankova  Rahul Garg	
Hong Kong & Singapore (8)	Stephen Chang  Isaac Meng  Carol Liao	Abhijeet Neogy	Daniel Lau  Roland Mieth  Cedric Zhao	
Firm-wide Resources	Credit Research  65+ credit analysts	Risk Management  12 dedicated risk managers	Analytics  55+ quantitative research analysts	

As of 30 April 2020.

\* Dedicated legal resource.

# Emerging Markets Portfolio Committee

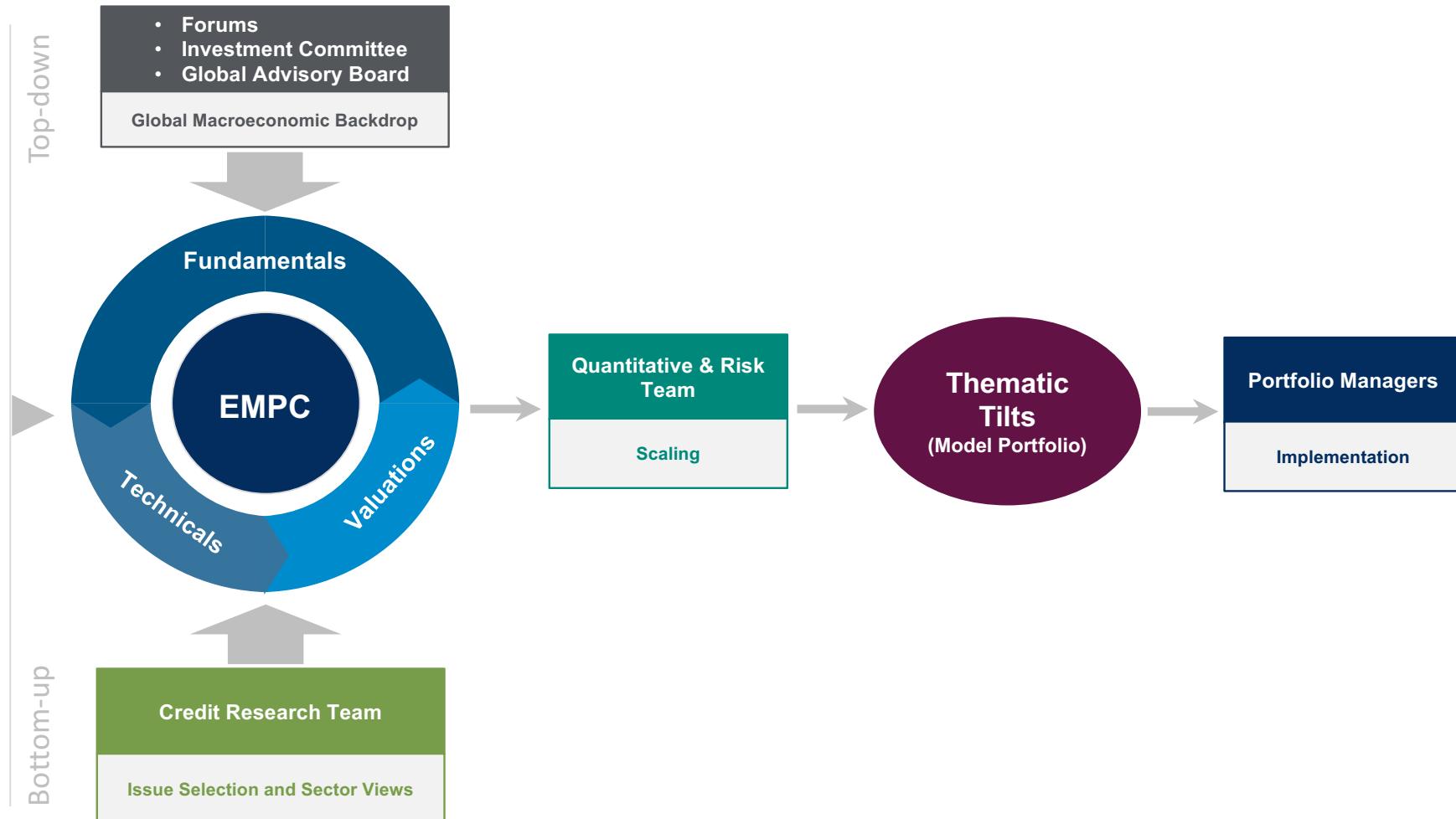
The central forum for communication and decision-making

Global Investment Committee (IC)																							
Americas Portfolio Committee (AmPC)	Asia-Pacific Portfolio Committee (APC)	Emerging Markets Portfolio Committee (EMPC)	European Portfolio Committee (EPC)																				
<b>Standing Committee Members</b>				<b>Rotating Members</b>																			
<table><tbody><tr><td><b>Pramol Dhawan, MD (Co-Chair)</b> 17 years investment experience</td><td><b>Gene Frieda, EVP (Co-Chair)</b> 26 years investment experience</td><td><b>Ismael Orenstein, SVP</b> 14 years investment experience</td><td></td></tr><tr><td><b>Yacov Arnopolin, EVP</b> 20 years investment experience</td><td><b>Lupin Rahman, EVP</b> 22 years investment experience</td><td><b>Mohsen Fahmi, MD</b> 35 years investment experience</td><td></td></tr><tr><td><b>Michael Davidson, SVP</b> 12 years investment experience</td><td><b>Kofi Bentsi, SVP</b> 23 years investment experience</td><td><b>Javier Romo, SVP</b> 17 years investment experience</td><td></td></tr><tr><td><b>Nikolas Skouloudis, SVP</b> 14 years investment experience</td><td><b>Mihaela Yankova, VP</b> 8 years investment experience</td><td></td><td></td></tr></tbody></table>				<b>Pramol Dhawan, MD (Co-Chair)</b> 17 years investment experience	<b>Gene Frieda, EVP (Co-Chair)</b> 26 years investment experience	<b>Ismael Orenstein, SVP</b> 14 years investment experience		<b>Yacov Arnopolin, EVP</b> 20 years investment experience	<b>Lupin Rahman, EVP</b> 22 years investment experience	<b>Mohsen Fahmi, MD</b> 35 years investment experience		<b>Michael Davidson, SVP</b> 12 years investment experience	<b>Kofi Bentsi, SVP</b> 23 years investment experience	<b>Javier Romo, SVP</b> 17 years investment experience		<b>Nikolas Skouloudis, SVP</b> 14 years investment experience	<b>Mihaela Yankova, VP</b> 8 years investment experience			<table><tbody><tr><td><b>Rahul Devgon, SVP</b> 21 years investment experience</td></tr><tr><td><b>Brian Holmes, VP</b> 10 years investment experience</td></tr><tr><td><b>Spyros Michas, VP</b> 10 years investment experience</td></tr></tbody></table>	<b>Rahul Devgon, SVP</b> 21 years investment experience	<b>Brian Holmes, VP</b> 10 years investment experience	<b>Spyros Michas, VP</b> 10 years investment experience
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<b>Structure</b>		<b>A forum for debate and discussion</b>	<b>A focus on actionable conclusions</b>																				
<ul style="list-style-type: none"><li>• Meets 2-3 times per week</li><li>• Integrated with PIMCO's other investment committees</li></ul>		<ul style="list-style-type: none"><li>• Economic, Political &amp; Policy Analysis</li><li>• Key Vulnerabilities</li><li>• ESG Considerations</li><li>• Market Technicals</li></ul>	<ul style="list-style-type: none"><li>• Evaluate individual issuers</li><li>• Identify value opportunities</li><li>• Scale risk</li></ul>																				

As of 31 March 2020. SOURCE: PIMCO

# Investment Process

Making the most of many resources

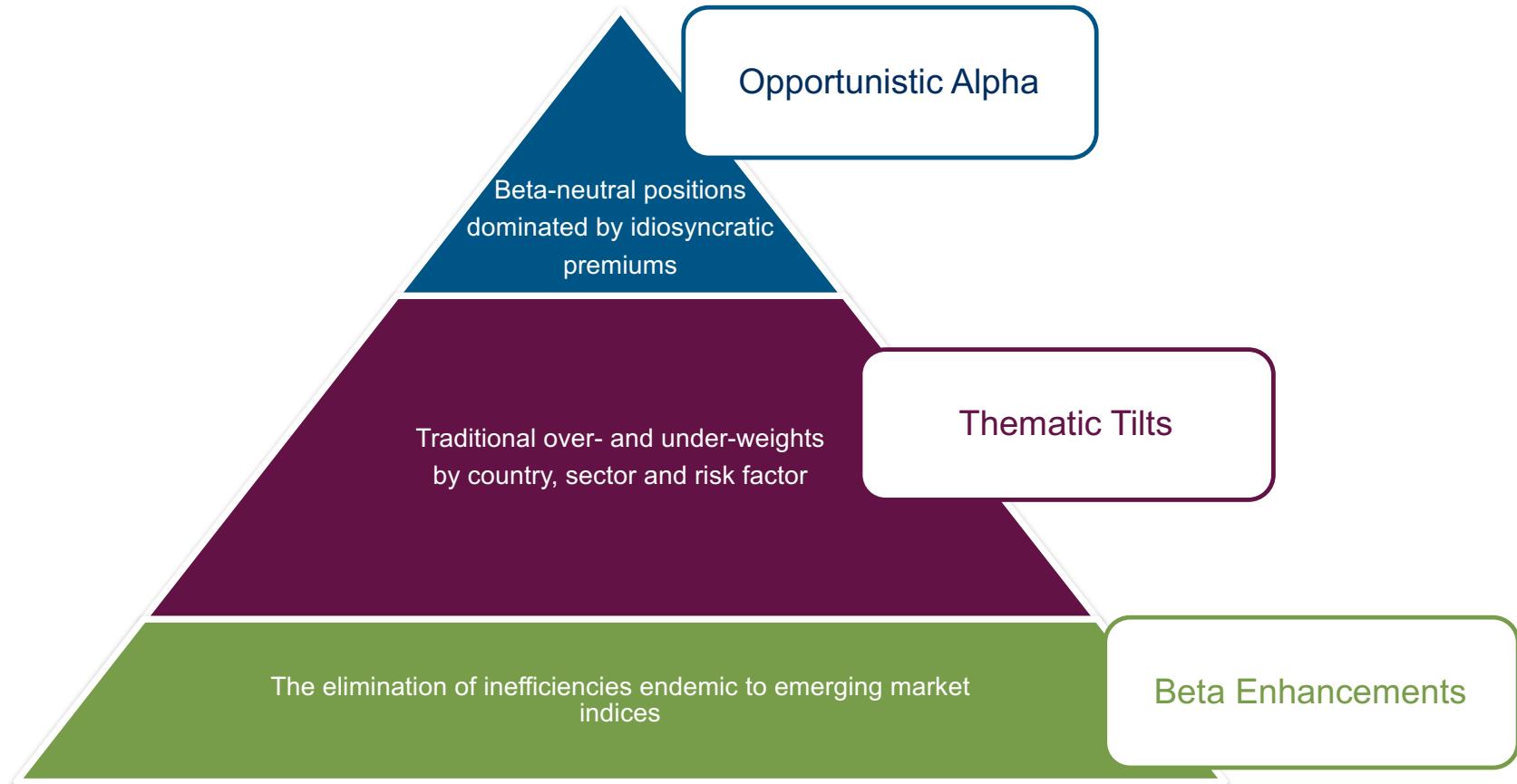


For Illustrative Purposes only

Refer to Appendix for additional investment strategy and risk information.

## Three Tiers of Active Portfolio Construction

Going beyond the country forecast



For illustrative purposes only.

There is no guarantee that an investment in any strategy or portfolio will achieve the investment objectives or that the desired results will be realized.

Refer to Appendix for additional investment strategy and risk information.

## Beta Enhancements

Eliminating the natural drag of index-replication

Four Pillars of Beta Enhancement				
	Tax Optimization	Carry / Value Model	Smart Rebalancing	Derivative Replication
Source of Drag	Capital gains and withholding taxes not reflected in the index returns	Index composition dominated by subset of instruments	Transaction costs from monthly index rebalancing	Overbought liquid cash markets subject to overshoots
Our Solution	Credit-linked notes and other non-taxable instruments	Model-driven risk factor replication by issuer	Rebalance opportunistically in advance	Synthetic replication adding convexity and potential basis

SOURCE: PIMCO.  
Refer to Appendix for additional investment strategy and risk information.

# Opportunistic Alpha

## Idiosyncratic Risk Premia



Source: PIMCO

Refer to Appendix for additional investment strategy and risk information.

# Leveraging PIMCO relationships with sovereigns and corporate issuers

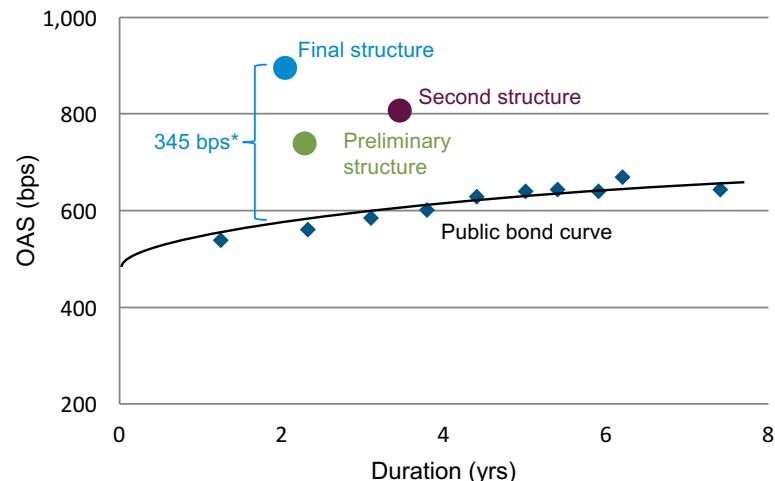
## Investment Overview

- Sovereign:** participated in an \$800mm lending facility to a country's Ministry of Finance arranged by the World Bank, a systemically-important lender to the country. Took down an entire tranche of two offered to private investors at an attractive spread to the secondary market. Cross-default with the World Bank guaranteed tranche incentivized the sovereign to stay current on both tranches.
- Corporate:** Brazilian financial company looking to raise \$250mm tapping the recent issue came to PIMCO rather than going to the market. Given our credit assessment of the issuer and favorable concessions relative to secondary market, PIMCO took down the entire tap.

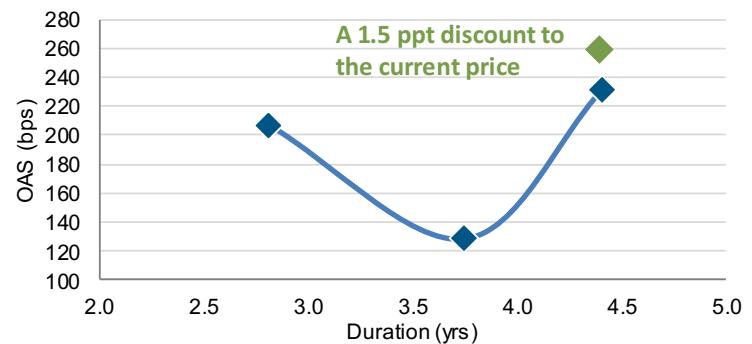
## PIMCO's Edge

- Scale and speed:** ability to move quickly (two weeks in the sovereign's case and one week in the corporate's case) and take down entire issue. A strong negotiating stance has helped to drive increasingly better pricing and cash flow dynamics for the deals.
- Relationships:** these deals offer a way for investors to access idiosyncratic risk premiums, but they require local relationships to access and that is what our large and geographically diverse team brings to the table.
- Platform resources:** collaboration between the EM Private Credit team, EM sovereign and credit research and Legal to source, diligence and structure the deal. Ability to provide in-depth macroeconomic analysis of the country and corporate, fair value assessment and comparables on pricing.

## Sovereign deal pricing throughout negotiation



## Corporate deal pricing



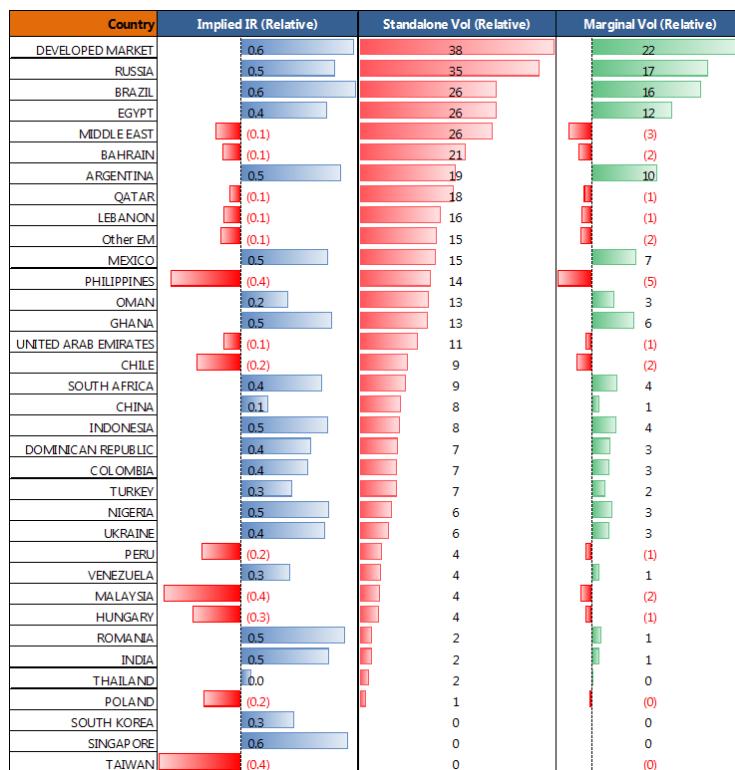
As of 15 January 2020. SOURCE: PIMCO. \* Spread over public bond when structure was finalized. **For illustrative purposes only.** The above is presented for illustrative purposes only, as a general example of PIMCO research and is not intended to represent any particular product or strategy's performance or how any particular product or strategy will be invested or allocated at any particular time. **Past performance is not a guarantee or a reliable indicator of future results.**  
Refer to Appendix for additional case study, investment strategy, OAS, outlook, and risk information.

# Quantitative Analysis and Risk Management

An integrated quantitative approach leveraging firm-wide resources

## Volatility and correlation analysis

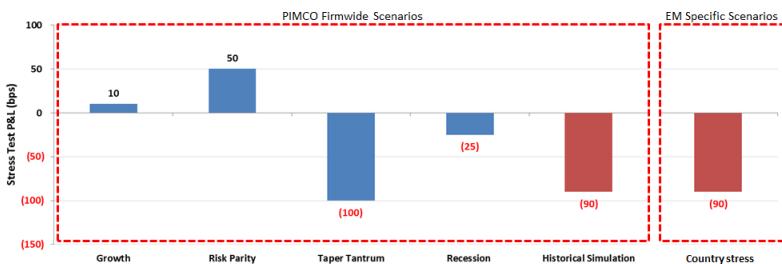
Portfolio-level assessment of correlations by individual position and risk factors, putting a soft cap on concentration risk



SOURCE: PIMCO. For illustrative purposes only.

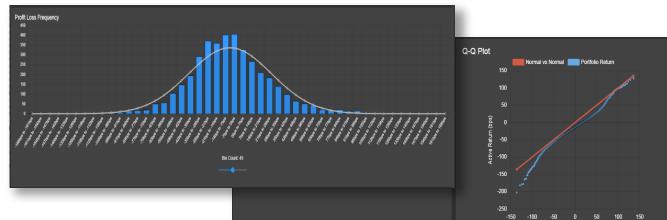
## Stress Testing

Regular forward-looking scenario analysis – both systemic and EM specific – defined by the firm's portfolio committees



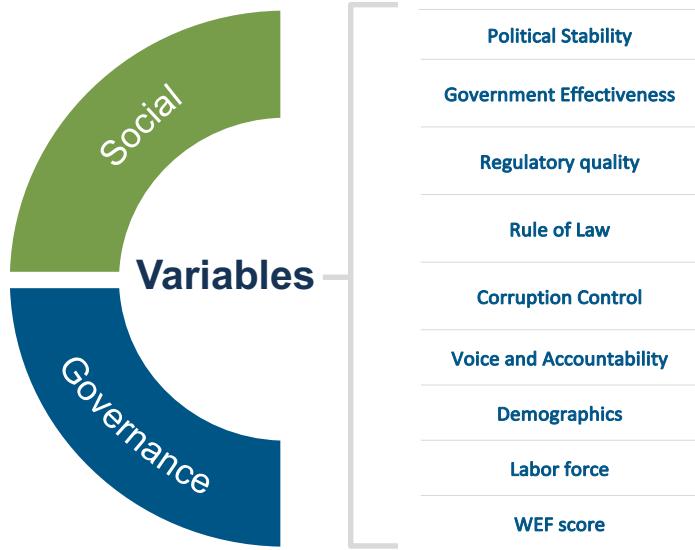
## Dashboard technology

State of the art tools to decompose portfolios by risk factor and assess performance and volatility drivers in real-time



## Integration of ESG factors

25% of PIMCO's sovereign ratings is determined by ESG variables



### 1 Long-term experience with ESG integration

PIMCO has been incorporating "Governance" and "Social" indicators in its Sovereign Ratings Model since 2011

### 2 Factor selection based on explanatory power

Social and governance variables have been selected based on their high explanatory power for sovereign credit risk

### 3 Proprietary ESG scores inform about left-tail risks

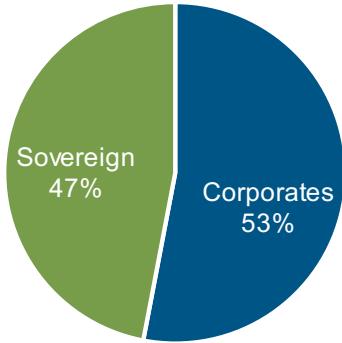
PIMCO's produces proprietary ESG scores – although not explicitly incorporated in the investment process, they provide crucial insights into potential left-tail risks of sovereign and non-sovereign issuers

SOURCE: PIMCO. For illustrative purposes only. Refer to Appendix for additional ESG investment strategy and risk information.

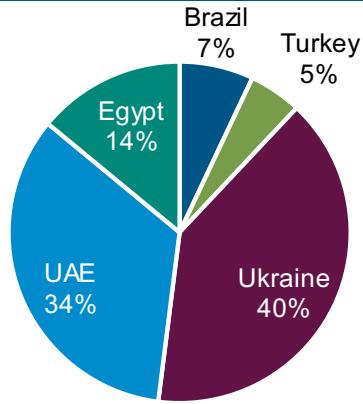
# EM Private Credit and Special Situations Group

## *Past activity breakdown and forward-looking country expectations*

Corporates vs Sovereigns (in volume USD)



Country Breakdown (in volume USD)



Tier	Investment thesis	Status update
Tier 1 Countries	Brazil, India, China, Mexico	Large ongoing secular opportunity set
Tier 2 Countries	Ukraine, Argentina, Indonesia, Turkey, Poland, South Africa, Russia	Medium level opportunity set
Tier 3 Countries	Colombia, Venezuela, Romania, Kenya, Nigeria, Egypt	Prospective / opportunistic deals

As of 31 January 2020. For illustrative purposes only.

"Investment Country" based on EM PRIVATE team determined criteria: Quality of doing business (World Bank ease of doing business Report) and Size (GDP). Used PIMCO's current views / outlook of opportunities in the countries identified. This quantitative analysis was then overlaid with an analysis of where EM PRIVATE team currently sees opportunities. This analysis is based on the team's view over the next 12-18 months, and is subject to change.

Refer to appendix for additional investment strategy and risk information.

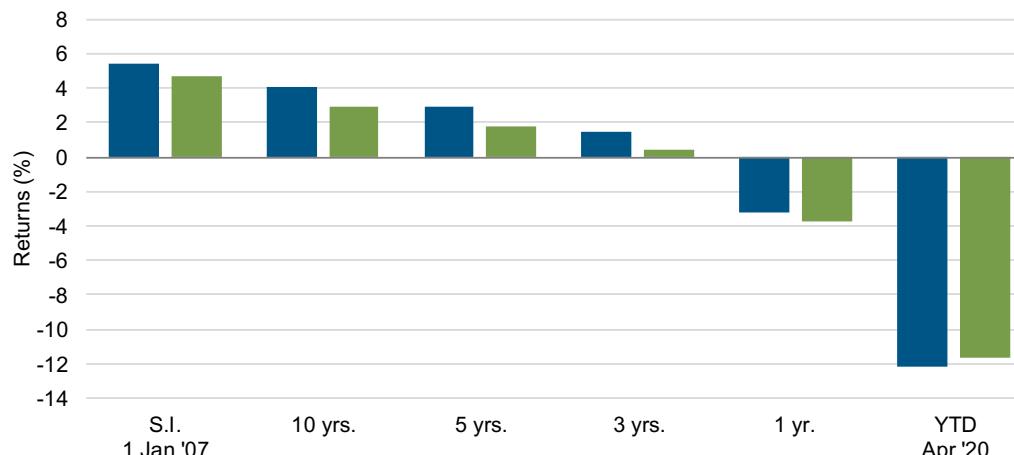


## Performance and Positioning

# PIMCO Emerging Markets Blended Global Government Bond Composite performance review

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Periods ended 30 Apr '20



Before fees (%)	5.44	4.07	2.95	1.50	-3.23	-12.16
After fees (%)	5.07	3.70	2.59	1.16	-3.56	-12.25
50%JP EMBI GLB DIV/50% JP GBI-EM GLB DIV (%)	4.64	2.96	1.76	0.45	-3.77	-11.63
Before fees alpha (bps)	80	111	119	105	54	-53

As of 30 April 2020

Past performance is not a guarantee or a reliable indicator of future results.

Results longer than one year are annualized.

Benchmark: 50% JPMorgan Global Bond Index Emerging Markets-Global Diversified, 50% JPMorgan Emerging Markets Bond Index Global Diversified.

Refer to Appendix for additional performance and fee, chart, composite, index, and risk information.

## Representative Account: Performance attribution

---

Risk Factor	Performance Impact <sup>1</sup>	
	QTD '20	YTD '20
<b>Beta Rotation<sup>2</sup></b>	<b>+85</b>	<b>-10</b>
Local Rates & Currency	+35	+60
EM Spread	+50	-70
<b>Alpha</b>	<b>+20</b>	<b>-30</b>
Local Rates	+20	-30
EM Spread	+25	+35
Currencies	-25	-35
<b>Other<sup>3</sup></b>	<b>-10</b>	<b>+25</b>
<b>TOTAL</b>	<b>+95</b>	<b>-15</b>

As of 29 May 2020. SOURCE: PIMCO.

<sup>1</sup> Estimated attribution rounded to the nearest 5 basis point.

<sup>2</sup> Captures attribution from asset allocation decisions (e.g. overweight EM local strategies) as well as beta positioning within that fund (e.g. overweight currencies vs neutral local rates within the EM local fund).

<sup>3</sup> Residual or unexplained attribution which often arises from timing of cash-flows among other factors.

Benchmark: 50% JPM EMBIG Div. ex Russia / 50% JPM GBI-EM Global Div. ex Russia. Prior to March 2017 the benchmark was 50% JPM EMBIG Div. / 50% JPM GBI-EM Global Div.

# Representative Account: Historical performance attribution

---

Risk Factor	2019	2018	2017	PERFORMANCE IMPACT <sup>1</sup>			2014
				2016	2015	2014	
<b>Beta Rotation<sup>2</sup></b>	<b>+70</b>	<b>0</b>	<b>+45</b>	<b>+125</b>	<b>-25</b>	<b>+5</b>	
Local Rates & Currency	+40	0	+40	+10	-15	-20	
EM Spread	+30	0	+5	+115	-10	+25	
<b>Alpha</b>	<b>+300</b>	<b>+90</b>	<b>+180</b>	<b>+45</b>	<b>+100</b>	<b>-5</b>	
Local Rates	+55	+45	+40	+10	-20	+15	
EM Spread	+125	+45	+115	+160	-105	-155	
Currencies	+120	0	+25	-125	+225	+135	
<b>Other<sup>3</sup></b>	<b>+40</b>	<b>+25</b>	<b>-70</b>	<b>0</b>	<b>+15</b>	<b>-30</b>	
<b>TOTAL</b>	<b>+410</b>	<b>+115</b>	<b>+155</b>	<b>+170</b>	<b>+90</b>	<b>-30</b>	

As of 28 May 2020. SOURCE: PIMCO.

<sup>1</sup> Estimated attribution rounded to the nearest 5 basis point.

<sup>2</sup> Captures attribution from asset allocation decisions (e.g. overweight EM local strategies) as well as beta positioning within that fund (e.g. overweight currencies vs neutral local rates within the EM local fund).

<sup>3</sup> Residual or unexplained attribution which often arises from timing of cash-flows among other factors.

Benchmark: 50% JPM EMBIG Div. ex Russia / 50% JPM GBI-EM Global Div. ex Russia

The performance data is based on a representative account. An investor should refer to the PIMCO Emerging Markets Blended Global Government Bond Composite GIPS Composite Report included in the Appendix.

GIPS® is a registered trademark owned by

CFA Institute.

Refer to Appendix for additional performance fee, hypothetical example, index, representative account, and risk information.

## Portfolio positioning details



### What we like

#### EM External

- Higher quality, investment-grade: *Israel, Malaysia, Panama*
- Credible reform stories/IMF backstop: *Egypt, Ukraine*
- Harvest premia outside of index universe: *EUR-denom. paper from Serbia*
- Select cross-over BB-rated names: *Brazil, Guatemala, Dominican Republic*

### What we do not like

- Fully priced-in good stories: *Philippines*
- Countries vulnerable to the **collapse in oil prices or tourism**: *Angola, Bahrain, Saudi Arabia*
- Fundamentally weak credits: *Bolivia, Honduras, Iraq, Lebanon, Tajikistan*

#### EM Local

- Emphasize portfolio liquidity and high-quality positions
- Steep curves and countries with further expected monetary easing: *Peru, Russia, Mexico*
- Hand-picked frontier-market opportunities with low correlation to EM beta: *Dominican Rep., Egypt*
- Optimize beta through tax-efficient exposures: *IDR CLNs*

- Countries with an **unorthodox policy mix**: *Romania*
- Deteriorating credit profiles at risk of downgrades: *South Africa*

As of 31 March 2020. SOURCE: PIMCO. The above strategy overview is only intended to illustrate major themes. Refer to Appendix for additional investment strategy, portfolio structure and risk information.



## Outlook

## Current backdrop

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A historic shock with lingering uncertainty and market dysfunctionality

### Economic Fundamentals

- The base-case assumption is a U-shaped economic recovery during the second half of 2020
- Asia is leading while Latin America is lagging developed markets in the COVID cycle, which should peak in the U.S. in the next few months
- Lasting damage will be done to all, but only a few will default. Frontier oil-producers are most vulnerable
- Policy flexibility (including via the IMF) and balance sheet strength are the key variables to assess
- Political risk assessment will become more important over the secular horizon

### Financial Market Functioning

- Distortions abound, including inverted yield curves, cash-CDS bases, trading volumes and implied probabilities of default
- EM debt is an “outer-perimeter” asset – it can only be fixed once “inner” assets are fixed, including agency mortgage-backed securities and investment-grade corporate bonds.

As of 31 March 2020. SOURCE: PIMCO

Refer to Appendix for additional investment strategy and risk information.

# PIMCO's reaction to the crisis

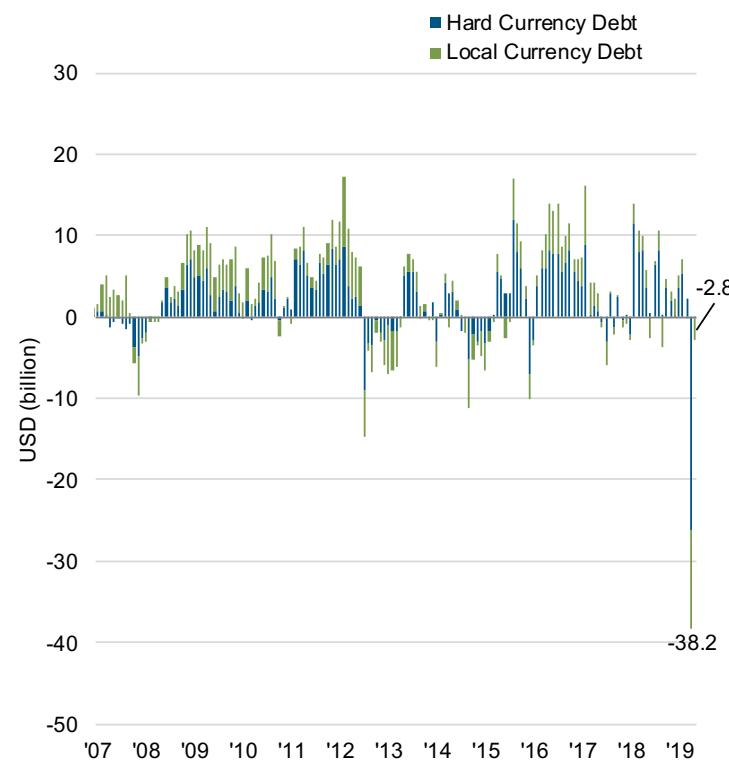
	<b>How were we positioned going into the crisis?</b>	<b>Positioning changes in February and March</b>	<b>Positioning changes in April</b>
External portfolios	<ul style="list-style-type: none"> <li><b>We maintained dry powder</b> in early 2020 anticipating a wave of new issuance</li> <li><b>We stayed selective</b> and ramped-up risk slowly</li> <li><b>We kept an underweight to GCC countries</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Reduced exposure to vulnerable countries</b> - e.g., Ecuador and Argentina using inflows in February</li> <li>As Covid-19 spread outside of China, we started <b>building a cash buffer</b></li> <li><b>Remained void</b> high default risk countries like Lebanon</li> </ul>	<ul style="list-style-type: none"> <li>As market conditions improved, IG issuers returned to the primary market offering <b>attractive new issuance premia</b></li> <li><b>Selectively participated in new issues</b> from countries like Israel, Indonesia, Peru, Qatar, and Saudi Arabia</li> </ul>
Local portfolios	<ul style="list-style-type: none"> <li>In line with cyclical outlook we anticipated a gradual improvement of macro environment in EM</li> <li>As a result, we <b>added risk in EM FX, while retaining overweight to EM local duration</b></li> </ul>	<ul style="list-style-type: none"> <li>As news Covid-19 outside of China, we <b>added high quality China duration exposure</b></li> <li>We <b>took down our exposure to EM FX</b>, in addition to <b>raising liquidity</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Increased overweight to EM local duration</b> which we favor over EM FX</li> <li>Maintain preference for countries with steep yield curves and/or room for rate cuts (Peru, Russia, Mexico)</li> <li><b>Further reduced EM FX exposure</b></li> </ul>

As of 30 April 2020. SOURCE: PIMCO  
 Refer to Appendix for additional investment strategy, outlook and risk information.

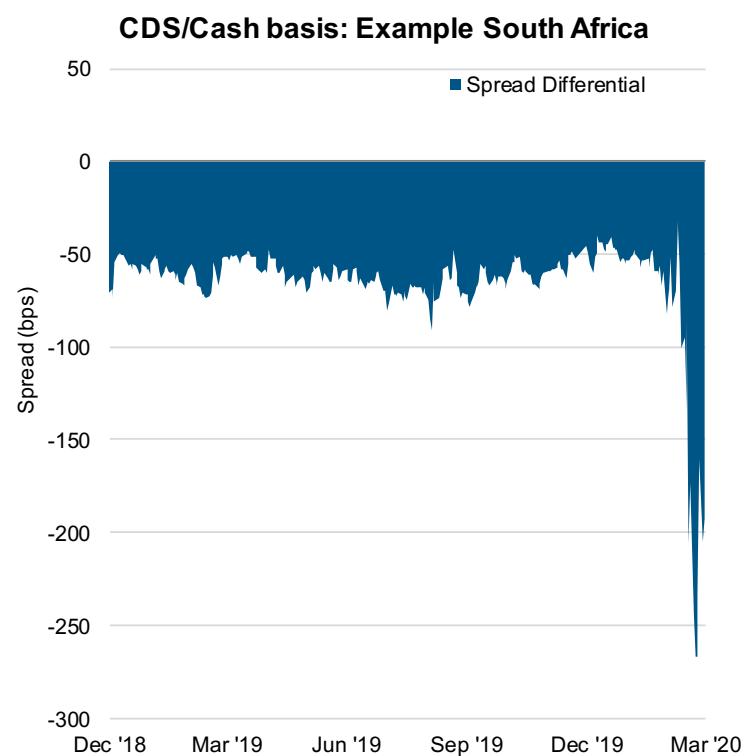
## Market dislocations are complicating the repricing process

Lack of liquidity along with forced sales from levered investors and ETFs led to price distortions

Record outflows from emerging markets....



...drove a wedge between derivative instruments and cash bonds as investors were forced to liquidate positions

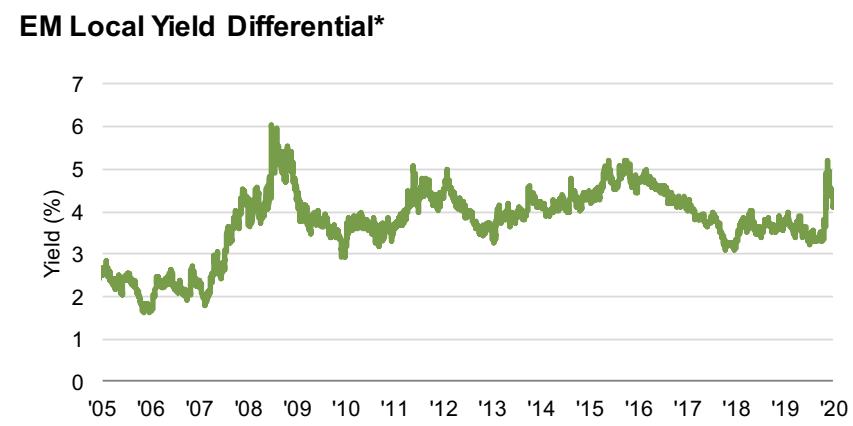
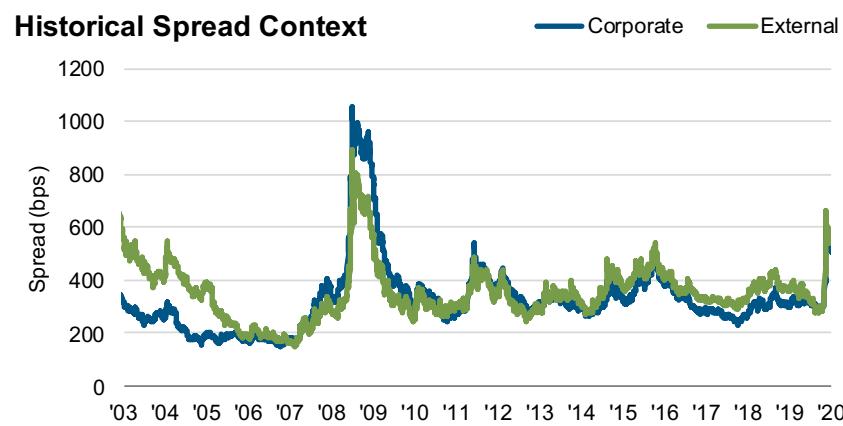
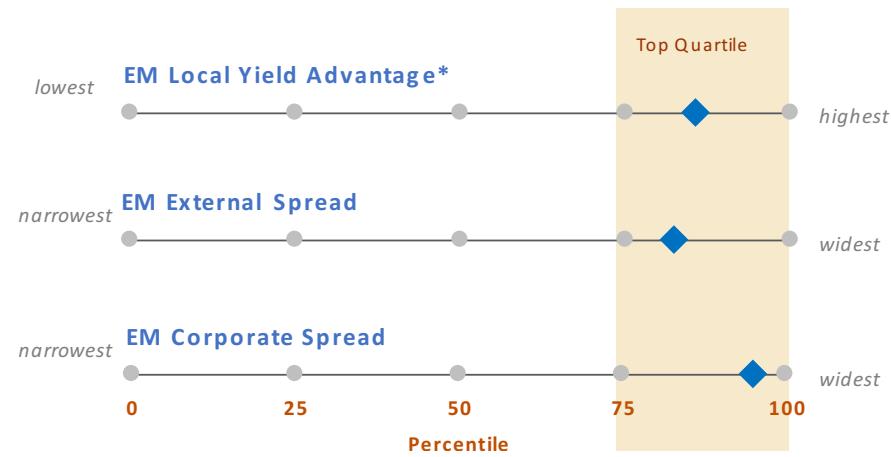


LHS Chart as of 30 April 2020. RHS Chart as of 31 March 2020. SOURCE: JPMorgan, Bloomberg, PIMCO.

CDS/Cash Basis in South Africa is calculated as the spread differential between a generic 5-year South Africa sovereign Credit Default Swap and the Republic of South Africa 5.875 09/2025 government bond

## Current pricing is still near all-time extremes

Even more so considering the improved quality of the underlying assets



As of 30 April 2020. \*Yield advantage and differential are calculated against generic U.S. Treasury 10yr yield.

Proxies: EM local yield -- JPMorgan GBI-EM Global Diversified Index; EM External Spread -- JPMorgan EMBI Global Index; EM Corporate Spread -- JPMorgan CEMBI Diversified Index.

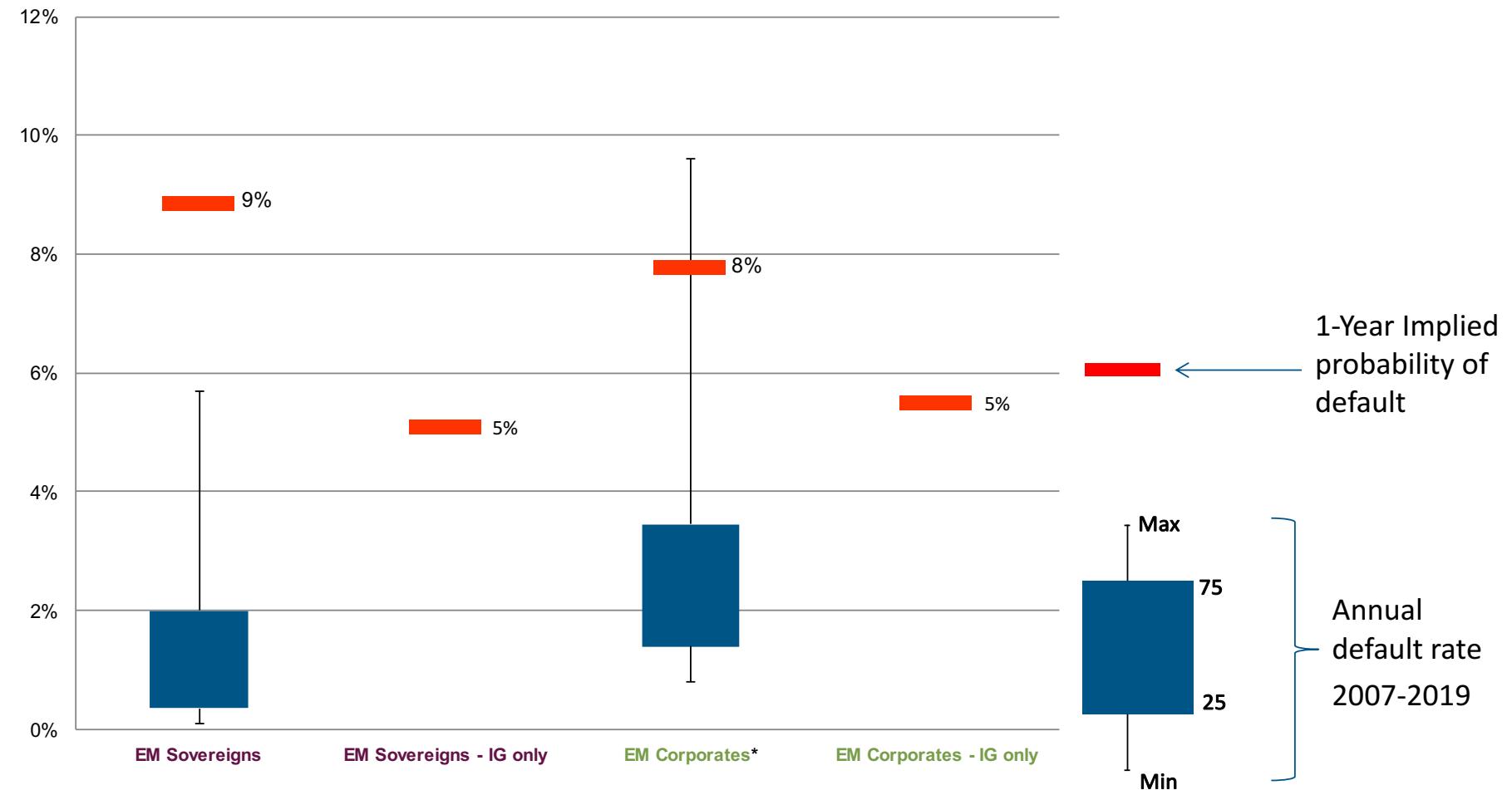
Percentiles are based on monthly averages for the past 20 years.

SOURCE: PIMCO, Bloomberg, JP Morgan.

Refer to appendix for additional investment strategy, index, and risk information

## Value opportunities appear clearest in hard currency assets

Market prices unprecedented rates of defaults



As of 30 April 2020. SOURCE: Bloomberg, JPMorgan, PIMCO.

\*EM corporate defaults were all in HY territory in the given time frame

40% Recovery Rate assumed in implied probability of default calculation

Proxies: EM Corporates — JPMorgan CEMBI Broad Index; EM Sovereigns—JPMorgan EMBI Global Index; IG subcomponents: EM Corporates IG — JPMorgan CEMBI broad IG index; EM Sovereigns IG — JPMorgan EMBI Global Index

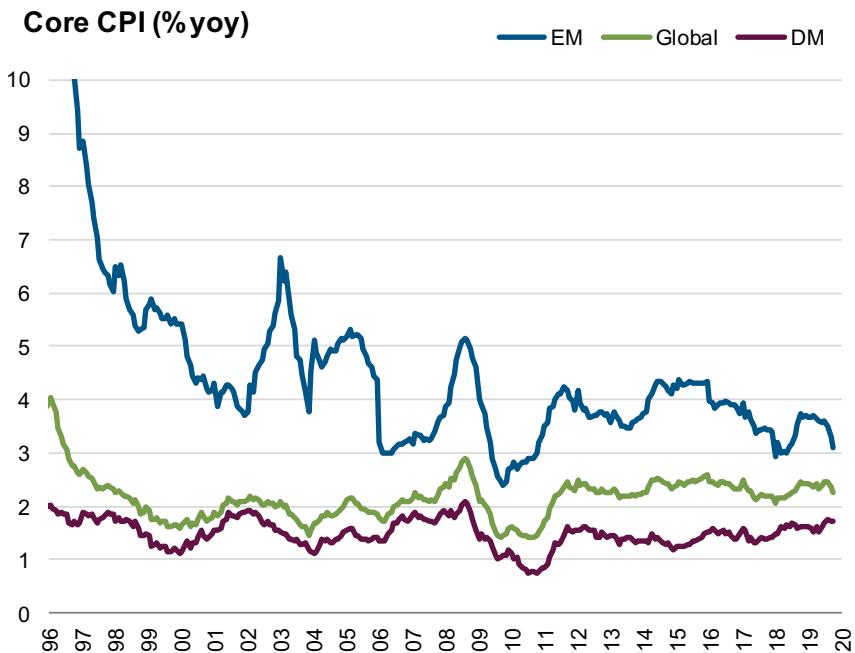
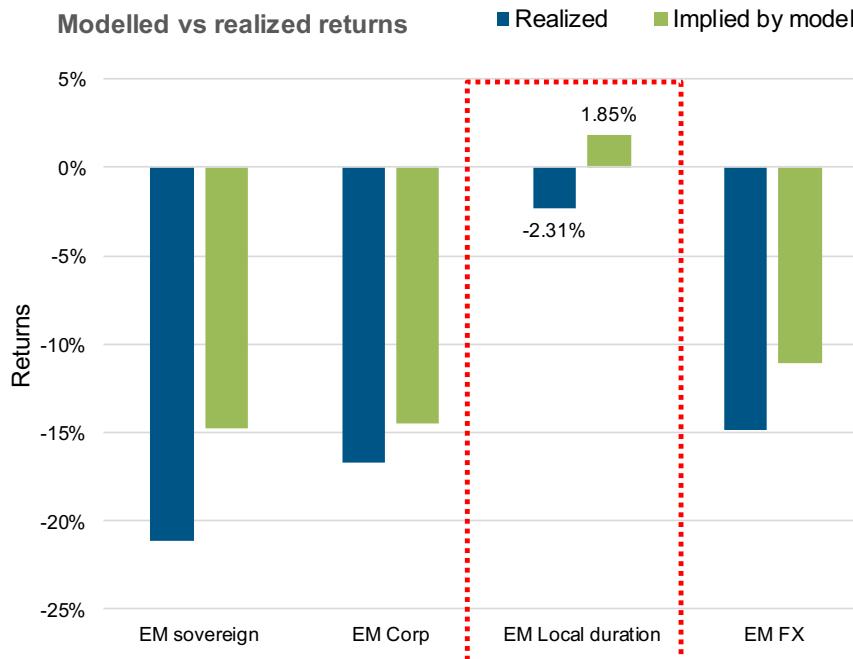
Refer to appendix for additional investment strategy, index, and risk information

## Local interest rates offer “old normal” yields, with capital gains potential

A stark contrast with Europe and Japan, and now the U.S.

A total break with past fundamental drivers

Disinflation will drive yields lower in coming years

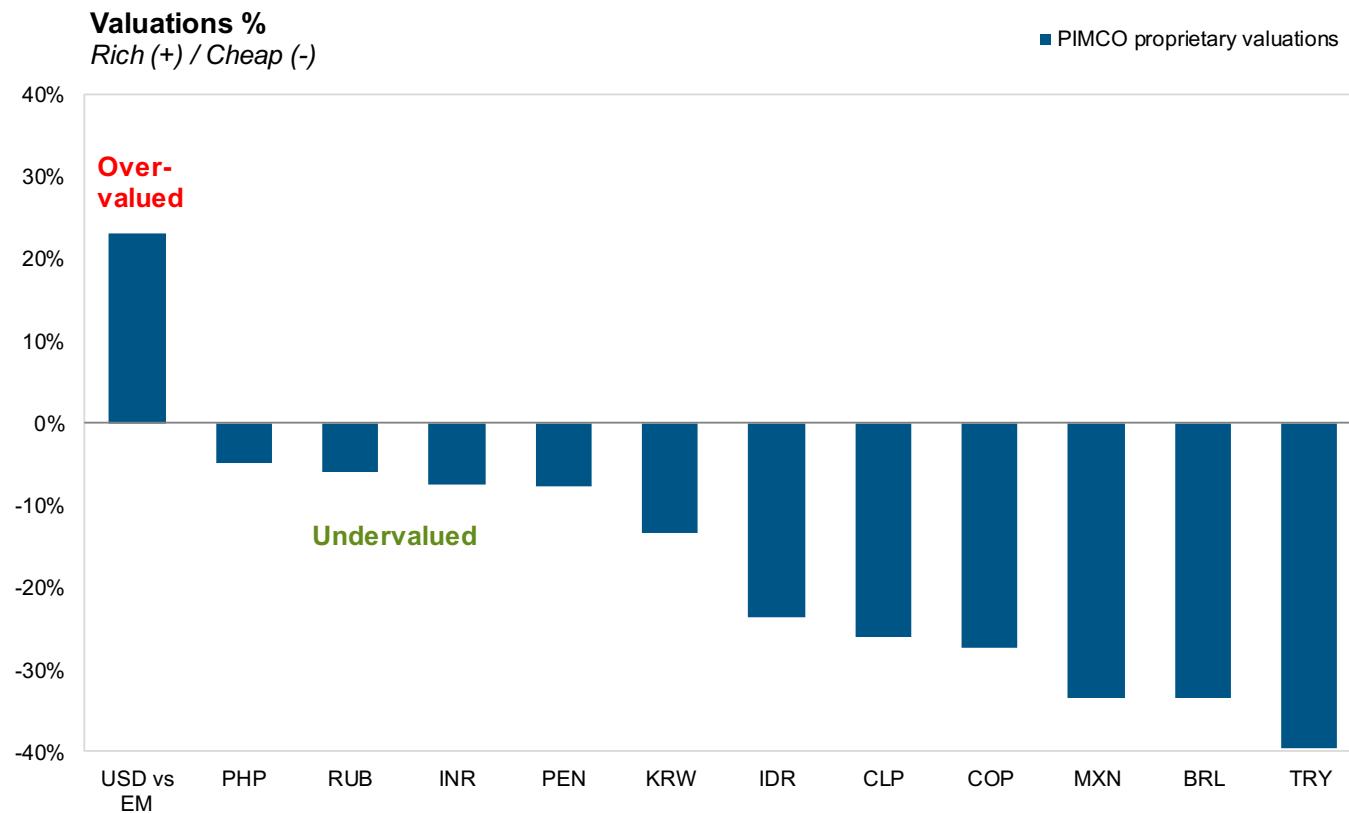


As of 31 March 2020. SOURCE: PIMCO, JPMorgan. Implied returns are based on a proprietary PIMCO model that accounts for 4 global risk factors such as US Treasuries, equities, commodities, and USD. Realized return is proxied by JPMorgan indices: EMBI Global (EM sovereign), CEMBI Diversified (EM corps), GBI-EM GD (EM local duration), and ELMI+ (EM FX).

<sup>^</sup>Refer to Appendix for additional investment strategy and risk information.

## Currencies are cheap but require a longer investment horizon

The terms-of-trade shock, the US dollar shortage and general uncertainty must first fade



As of 02 April 2020. SOURCE: PIMCO.

The terms "cheap" and "rich" as used herein generally refer to a security or asset class that is deemed to be substantially under- or overpriced compared to both its historical average as well as to the investment manager's future expectations. There is no guarantee of future results or that a security's valuation will ensure a profit or protect against a loss.

Refer to Appendix for additional investment strategy, risk, and valuation information.

## Where do we go from here?

If history is any guide...

EM External: Sell-Offs and Recoveries (>10%)					
Event	Year	Peak to Trough Return	Recovery Time (from Trough)	6 Month Return (from Trough)	12 Month Return (from Trough)
Covid-19*	2020	-14.1%	?	?	?
Taper Tantrum	2013	-10.3%	9 Months	5.9%	13.9%
GFC	2008	-20.7%	8 Months	20.3%	39.6%
Russia Default Crisis	1998	-30.9%	16 Months	19.5%	31.1%
Asian Financial Crisis	1997	-10.6%	5 Months	12.9%	-9.9%
Peso Crisis	1994	-27.8%	9 Months	29.2%	47.9%

**Emerging markets have been through numerous crises of similar magnitude (if by different cause)**

**The self-reinforcing, generalized EM crises of the 90's ended with structural and policymaking improvements...**

- The end of "original sin" - borrowing predominantly in a foreign currency
- From fixed to floating exchange rates
- A massive build-up in reserves and other forms of balance sheet strength

**...but externally-generated crises have taken their place**

As of 30 April 2020.

SOURCE: PIMCO, Bloomberg, JP Morgan

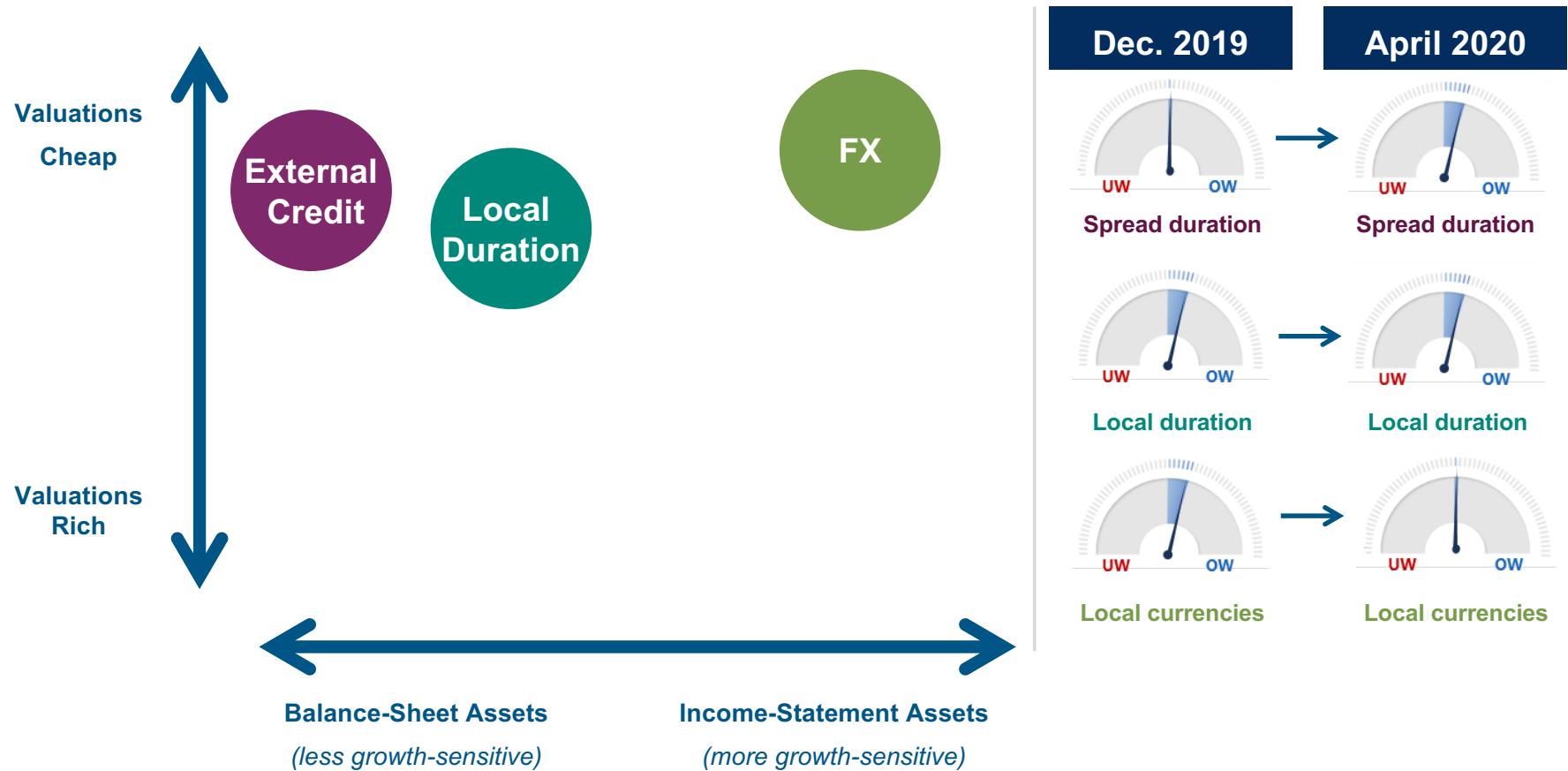
Benchmark: JPM EMBI Global

\*The continued long term impact of COVID-19 on credit markets and global economic activity remains uncertain as events such as development of treatments, government actions, and other economic factors evolve. The views expressed are as of the date recorded, and may not reflect recent market developments.

Refer to Appendix for additional index, investment strategy and risk information.

## PIMCO EM asset allocation framework: preference for Balance-Sheet Assets

The highly uncertain global environment weighs on growth related assets like EM FX



As of 30 April 2020.

SOURCE: PIMCO. For illustrative purposes only.

## Recovery scenarios

Upside potential under even modest recovery

Scenarios	No Tightening	Soft Tightening	Medium Tightening	Strong Tightening
<b>Spread Retracement</b>	0%	25%	50%	75%
<b>Potential EM Spread Move (bps)</b>	0	-70	-140	-210
<b>Average Carry</b>	6.3%	5.7%	5.3%	5.0%
<b>Price Appreciation</b>	0.0%	4.9%	9.8%	14.7%
<b>12-Month Performance (est.)</b>	6.3%	10.6%	15.1%	19.7%

JP Morgan EMBI Global Index	Current	Feb-19	Dec-31
Spread (bps)	557	286	277

Hypothetical example for illustrative purposes only

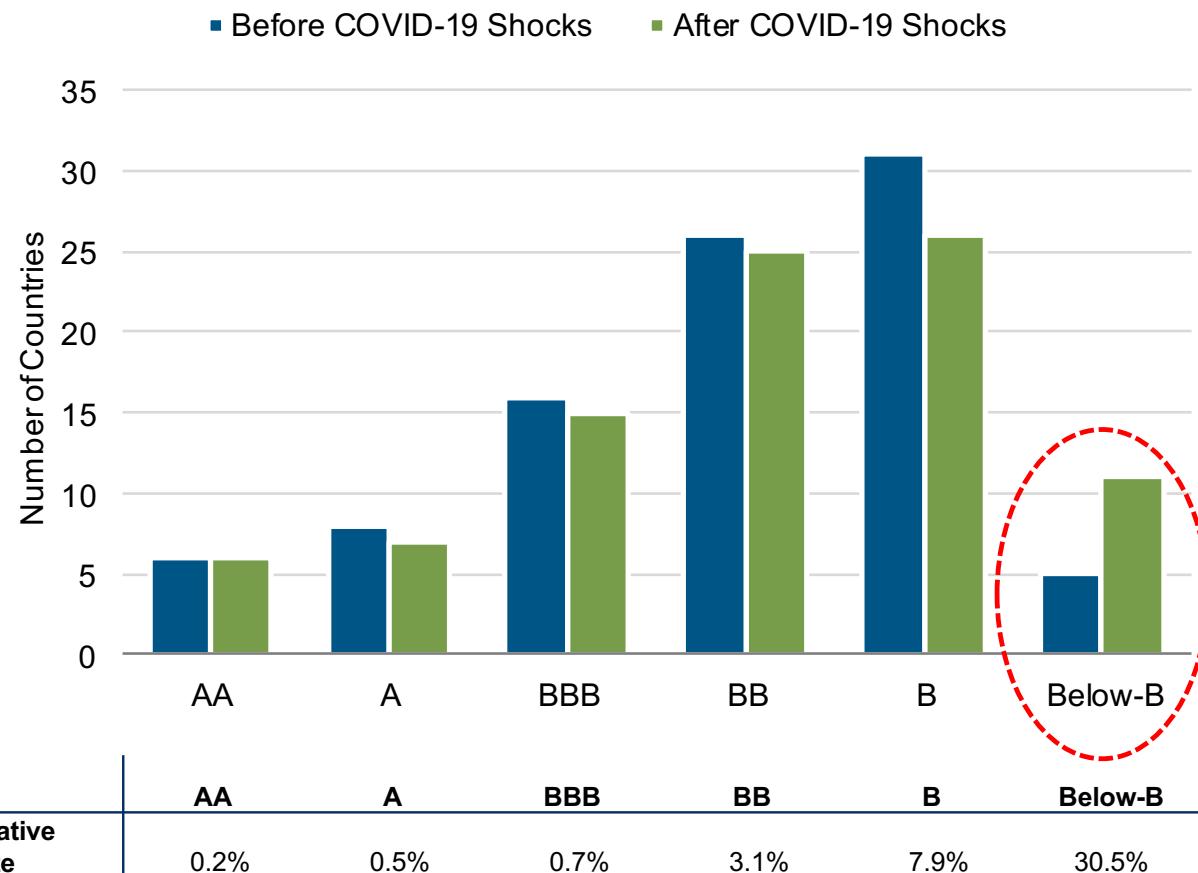
As of 30 April 2020. SOURCE: PIMCO.

Please note, this analysis assumes unchanged Treasury yields, given PIMCO's expectation that they remain range bound.

Refer to appendix for additional forecast, hypothetical example, index and risk information.

## Quality could migrate lower and defaults may rise...

A number of countries could tip into default territory



Hypothetical example for illustrative purposes only

As of 31 March 2020. SOURCE: PIMCO.

Ratings represented are PIMCO internal ratings of sovereign emerging market countries

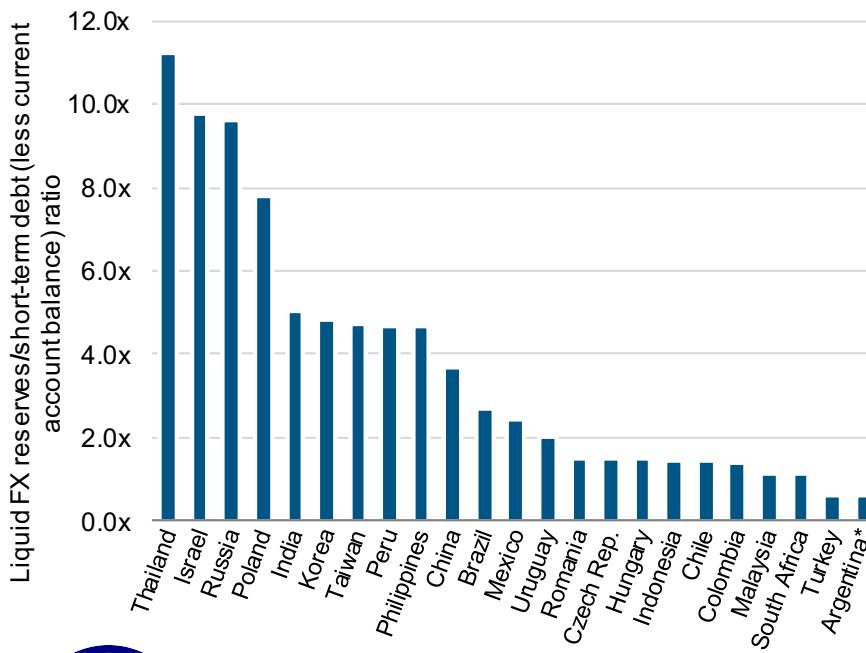
Refer to the Appendix for additional credit quality, forecast and risk information.

...but balance sheet strength and policy flexibility are important

Many EM countries have the tools to defend against near-term bouts of volatility

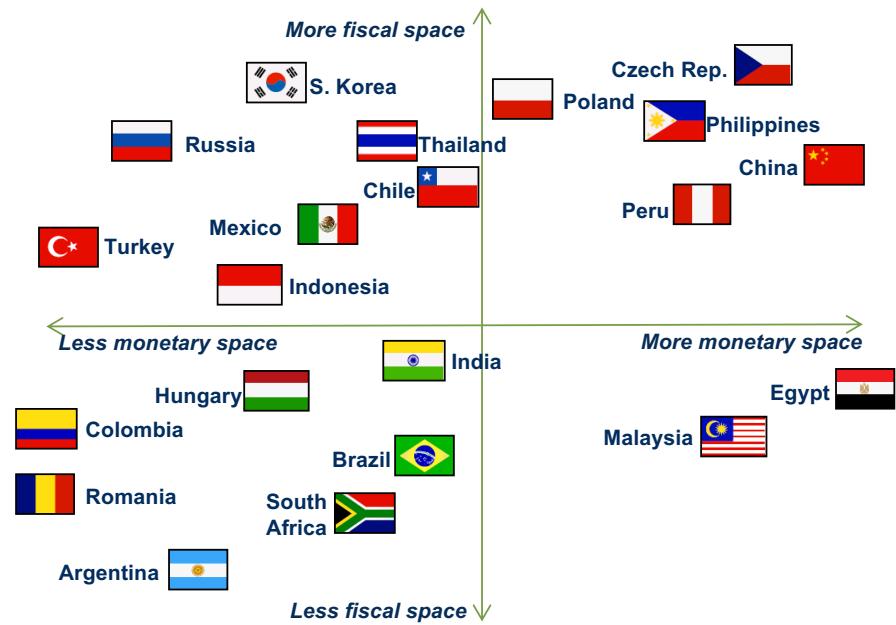
## Precautionary savings is common

## Coverge of short-term debt and the current account



***Additionally, the International Monetary Fund has \$1 Trillion in lending capacity—about 8x the amount it had during the 2008 Global Financial Crisis***

## Monetary and fiscal space as well



As of 31 March 2020. Source: J.P. Morgan, Capital Economics, IMF, PIMCO

\*Argentina FX reserves include PBOC and BIS swap lines.

Refer to Appendix for additional outlook and risk information.

# Appendix

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## PERFORMANCE AND FEES

**Past performance is not a guarantee or a reliable indicator of future results.** Gross returns do not reflect the deduction of investment advisory fees (for Pacific Investment Management Company LLC described in Part 2 of its Form ADV) in the case of both separate investment accounts and mutual funds; but they do reflect commissions, other expenses (except custody), and reinvestment of earnings. Such fees that a client may incur in the management of their investment advisory account may reduce the client's return. For example, over a five-year period, annual advisory fees of 0.425% would reduce compounding at 10% annually from 61.05% before fees to 57.96% after fees. The "net of fees" performance figures reflect reinvestment of earnings and dividends and the deduction of investment advisory fees and brokerage commissions but, typically, do not reflect the deduction of custodial fees. All periods longer than one year are annualized. Separate account clients may elect to include PIMCO sector funds in their portfolio; sector funds may be subject to additional terms and fees. For a copy of net of fees performance, unless included otherwise, please contact your PIMCO representative.

## CASE STUDY

This presentation contains examples of the firm's internal investment research capability. The data contained within the reports may not be related to the product discussed herein, may be stale and should not be relied upon as investment advice or a recommendation of any particular security, strategy or investment product. Information contained herein has been obtained from sources believed to be reliable, but not guaranteed.

## CHARTS

Performance results for certain charts and graphs may be limited by date ranges specified on those charts and graphs; different time periods may produce different results.

## COMPOSITE

Composite performance is preliminary until the 12th business day of the month.

## CORRELATION

The correlation of various indexes or securities against one another or against inflation is based upon data over a certain time period. These correlations may vary substantially in the future or over different time periods that can result in greater volatility.

## CREDIT QUALITY

The credit quality of a particular security or group of securities does not ensure the stability or safety of an overall portfolio. The quality ratings of individual issues/issuers are provided to indicate the credit-worthiness of such issues/issuer and generally range from AAA, Aaa, or AAA (highest) to D, C, or D (lowest) for S&P, Moody's, and Fitch respectively.

## ESG

Socially responsible investing is qualitative and subjective by nature, and there is no guarantee that the criteria utilized, or judgment exercised, by PIMCO will reflect the beliefs or values of any one particular investor. Information regarding responsible practices is obtained through voluntary or third-party reporting, which may not be accurate or complete, and PIMCO is dependent on such information to evaluate a company's commitment to, or implementation of, responsible practices. Socially responsible norms differ by region. There is no assurance that the socially responsible investing strategy and techniques employed will be successful. Past performance is not a guarantee or reliable indicator of future results.

## FORECAST

Forecasts are based on proprietary research and should not be interpreted as investment advice, as an offer or solicitation, nor the purchase or sale of any financial instrument. There is no guarantee that results will be achieved.

## HYPOTHETICAL EXAMPLE

HYPOTHETICAL PERFORMANCE RESULTS HAVE MANY INHERENT LIMITATIONS, SOME OF WHICH ARE DESCRIBED BELOW. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. IN FACT, THERE ARE FREQUENTLY SHARP DIFFERENCES BETWEEN HYPOTHETICAL PERFORMANCE RESULTS AND THE ACTUAL RESULTS SUBSEQUENTLY ACHIEVED BY ANY PARTICULAR TRADING PROGRAM.

ONE OF THE LIMITATIONS OF HYPOTHETICAL PERFORMANCE RESULTS IS THAT THEY ARE GENERALLY PREPARED WITH THE BENEFIT OF HINDSIGHT. IN ADDITION, HYPOTHETICAL TRADING DOES NOT INVOLVE FINANCIAL RISK, AND NO HYPOTHETICAL TRADING RECORD CAN COMPLETELY ACCOUNT FOR THE IMPACT OF FINANCIAL RISK IN ACTUAL TRADING. FOR EXAMPLE, THE ABILITY TO WITHSTAND LOSSES OR TO ADHERE TO A PARTICULAR TRADING PROGRAM IN SPITE OF TRADING LOSSES ARE MATERIAL POINTS WHICH CAN ALSO ADVERSELY AFFECT ACTUAL TRADING RESULTS. THERE ARE NUMEROUS OTHER FACTORS RELATED TO THE MARKETS IN GENERAL OR TO THE IMPLEMENTATION OF ANY SPECIFIC TRADING PROGRAM WHICH CANNOT BE FULLY ACCOUNTED FOR IN THE PREPARATION OF HYPOTHETICAL PERFORMANCE RESULTS AND ALL OF WHICH CAN ADVERSELY AFFECT ACTUAL TRADING RESULTS.

# Appendix

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## INVESTMENT STRATEGIES

There is no guarantee that these investment strategies will work under all market conditions or suitable for all investors and each investor should evaluate their ability to invest for a long-term especially during periods of downturn in the market.

## INDEX

It is not possible to invest directly in an unmanaged index.

## ISSUER

The issuers referenced are examples of issuers PIMCO considers to be well known and that may fall into the stated sectors. PIMCO may or may not own any securities of the issuers referenced and, if such securities are owned, no representation is being made that such securities will continue to be held.

## MODEL

The model portfolio is based on global risk factors for illustrative purposes only. No guarantee is being made that the structure of other similar portfolios will remain the same or that similar results will be achieved.

## OAS

The Option Adjusted Spread (OAS) measures the spread over a variety of possible interest rate paths. A security's OAS is the average return an investor will earn over Treasury returns, taking all possible future interest rate scenarios into account. The OAS is the net spread over the swap curve that will on average be earned if the security is held to maturity.

## OUTLOOK

Statements concerning financial market trends or portfolio strategies are based on current market conditions, which will fluctuate. There is no guarantee that these investment strategies will work under all market conditions, and each investor should evaluate their ability to invest for the long-term, especially during periods of downturn in the market. Outlook and strategies are subject to change without notice.

## REPRESENTATIVE ACCOUNT

This account was chosen because it is the largest or most representative of the portfolio characteristics. No guarantee is being made that the structure or actual account holdings of any account will be the same or that similar returns will be achieved.

## RISK

Investing in **foreign denominated** and/or domiciled securities may involve heightened risk due to currency fluctuations, and economic and political risks, which may be enhanced in emerging markets. Investing in the **bond** market is subject to risks, including market, interest rate, issuer, credit, inflation risk, and liquidity risk. The value of most bonds and bond strategies are impacted by changes in interest rates. Bonds and bond strategies with longer durations tend to be more sensitive and volatile than those with shorter durations; bond prices generally fall as interest rates rise, and the current low interest rate environment increases this risk. Current reductions in bond counterparty capacity may contribute to decreased market liquidity and increased price volatility. Bond investments may be worth more or less than the original cost when redeemed. **Mortgage and asset-backed securities** may be sensitive to changes in interest rates, subject to early repayment risk, and their value may fluctuate in response to the market's perception of issuer creditworthiness; while generally supported by some form of government or private guarantee there is no assurance that private guarantors will meet their obligations. **High-yield, lower-rated, securities** involve greater risk than higher-rated securities; portfolios that invest in them may be subject to greater levels of credit and liquidity risk than portfolios that do not. **Equities** may decline in value due to both real and perceived general market, economic, and industry conditions. **Derivatives** may involve certain costs and risks such as liquidity, interest rate, market, credit, management and the risk that a position could not be closed when most advantageous. Investing in derivatives could lose more than the amount invested.

## VALUATION

The terms "cheap" and "rich" as used herein generally refer to a security or asset class that is deemed to be substantially under-or overpriced compared to both its historical average as well as to the investment manager's future expectations. There is no guarantee of future results or that a security's valuation will ensure a profit or protect against a loss.

PIMCO as a general matter provides services to qualified institutions, financial intermediaries and institutional investors. Individual investors should contact their own financial professional to determine the most appropriate investment options for their financial situation. This material contains the current opinions of the manager and such opinions are subject to change without notice. This material has been distributed for informational purposes only. Information contained herein has been obtained from sources believed to be reliable, but not guaranteed. No part of this material may be reproduced in any form, or referred to in any other publication, without express written permission. PIMCO is a trademark of Allianz Asset Management of America L.P. in the United States and throughout the world.

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# Appendix

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## INDEX DESCRIPTIONS

JPMorgan Corporate Emerging Markets Bond Index (CEMBI) Diversified is a uniquely-weighted version of the CEMBI index. It limits weights of those index countries with larger corporate debt stocks by only including a specified portion of these countries' eligible current face amounts of debt outstanding. The CEMBI Diversified results in well-distributed, more balanced weightings for countries included in the index. The countries covered in the CEMBI Diversified are identical to those in the CEMBI, which is a global, liquid corporate emerging markets benchmark that tracks U.S.-denominated corporate bonds issued by emerging markets entities.

The JPMorgan Emerging Markets Bond Index Global is an unmanaged index which tracks the total return of U.S.-dollar-denominated debt instruments issued by emerging market sovereign and quasi-sovereign entities: Brady Bonds, loans, and Eurobonds.

The JPMorgan Government Bond Index-Emerging Markets Global Diversified Index (Unhedged) is a comprehensive global local emerging markets index, and consists of regularly traded, liquid fixed-rate, domestic currency government bonds to which international investors can gain exposure.

It is not possible to invest directly in an unmanaged index.

## PIMCO Emerging Markets Blended Global Government Bond Composite

	COMPOSITE RETURN (%) BEFORE FEES	COMPOSITE RETURN (%) AFTER FEES	BENCHMARK RETURN (%) *	COMPOSITE DISPERSION BEFORE FEES	COMPOSITE 3-YR STD DEV BEFORE FEES	BENCHMARK 3-YR STD DEV	NUMBER OF PORTFOLIOS	COMPOSITE ASSETS (USD) MILLIONS	TOTAL FIRM ASSETS (USD) BILLIONS	EMERGING MARKET BONDS SEPARATE ACCOUNT FEE SCHEDULE:
2019	16.54	16.15	14.31	N/A	5.94	6.51	Five or Fewer	1,235.0	1,899.1	1st \$100 Million 0.450%
2018	-3.75	-4.09	-5.15	N/A	6.85	7.83	Five or Fewer	1,166.7	1,664.6	Thereafter 0.350%
2017	13.03	12.66	12.74	N/A	6.83	7.61	Five or Fewer	1,231.4	1,755.7	
2016	12.33	11.93	10.16	N/A	7.89	8.60	Five or Fewer	911.9	1,467.0	
2015	-5.12	-5.48	-7.14	N/A	7.74	8.12	Five or Fewer	765.5	1,435.0	
2014	1.75	1.39	0.71	N/A	8.12	9.06	Five or Fewer	792.5	1,680.4	
2013	-7.21	-7.54	-7.10	N/A	8.41	9.64	Five or Fewer	868.3	1,919.6	
2012	16.79	16.42	17.21	N/A	7.42	8.97	Five or Fewer	5,506.0	2,003.8	
2011	6.25	5.87	2.79	N/A	8.36	9.72	6	2,506.9	1,357.2	
2010	13.92	13.53	14.02	N/A	13.59	13.75	Five or Fewer	2,606.1	1,242.1	

\* 50% JPMorgan EMBI Global Diversified / 50% JPMorgan GBI-EM Global Diversified

The composite creation date is June 2011

Pacific Investment Management Company LLC (PIMCO) is an investment adviser registered with the U.S. Securities and Exchange Commission that provides global investment solutions to institutions, individuals, and government entities worldwide. For GIPS compliance purposes, PIMCO has been defined to include the investment management activities of its affiliate PIMCO Deutschland GmbH and the following subsidiaries: PIMCO Australia Pty Ltd, PIMCO Canada Corp., PIMCO Europe Ltd, PIMCO Japan Ltd, PIMCO Asia Pte Ltd, and PIMCO Asia Limited. In January 2010, the firm definition was expanded to include fixed income assets managed in collaboration with Allianz Global Investors (Allianz) using the PIMCO investment process. Prior to 2010, country-specific limitations restricted the full implementation of the PIMCO investment process for these assets. In addition, in March 2012, the firm was redefined to include assets managed on behalf of Allianz's affiliated companies.

PIMCO claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. PIMCO has been independently verified for the period January 1987 through December 2019. The verification report is available upon request. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. Verification does not ensure the accuracy of any specific composite presentation. GIPS® is a registered trademark owned by CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy or quality of the content contained herein.

The PIMCO Emerging Markets Blended Global Government Bond Composite includes all discretionary, fee-paying, USD-based, Emerging Markets Bond accounts that are measured against a blend of the JPMorgan EMBI Global Index or JPMorgan EMBI Global Diversified Index and the JPMorgan GBI-EM Global Diversified Index. Emerging Markets Bond Strategy invests primarily in USD-denominated emerging markets fixed income instruments, but also uses local currency market exposures tactically. Investments may be represented by physical securities or derivatives such as futures contracts, swap agreements, forwards, or options. PIMCO generally considers an emerging market to be any country defined as an emerging or developing economy by the World Bank (or its related organizations) or the United Nations (or its authorities), but we have broad discretion to identify emerging market countries based on our assessment of aspects such as developments of local institutions, capital markets, etc. Portfolios in the composite may include institutional accounts or pooled vehicles.

The benchmark is a blend of 50% JPMorgan Emerging Markets Bond Index (EMBI) Global Diversified and 50% JPMorgan Government Bond Index-Emerging Markets (GBI-EM) Global Diversified, rebalanced monthly. The JPMorgan EMBI Global Diversified is a uniquely-weighted version of the EMBI Global. It limits the weights of those index countries with larger debt stocks by only including specified portions of these countries eligible current face amounts of debt outstanding. The countries covered in the EMBI Global Diversified are identical to those covered by the EMBI Global. The JPMorgan GBI-EM Global Diversified is a comprehensive global local emerging markets index, and consists of regularly traded, liquid fixed-rate, domestic currency government bonds to which international investors can gain exposure.

Valuations are computed and performance is reported in U.S. dollars. Returns are presented gross and net of management fees and include the reinvestment of all income. Net results reflect the deduction of actual management fees and, in some instances, custodial and administrative fees. Actual fees incurred by client accounts may vary. When applicable, composite performance is net of any actual withholding tax paid and not redeemable. Index returns are gross of withholding tax.

Composite dispersion presented is the equal-weighted standard deviation of annual returns for all portfolios in the composite for the full year. Dispersion is not statistically meaningful for periods shorter than a year or for years in which five or fewer portfolios were included for the full year. The three-year annualized ex-post standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The three-year annualized ex-post standard deviation is not presented if 36 monthly returns are not available. A complete list of composite descriptions and policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

Derivatives are frequently used in a non-leveraged manner as substitutes for physical securities. Futures, options, and swaps may be used to gain, hedge or restructure exposure to interest rates, volatility, spreads, foreign markets or currencies within the parameters allowed by individual portfolio guidelines. Use of these instruments may involve certain costs and risks such as liquidity, interest rate, market, credit, management and the risk that a position could not be closed when most advantageous. Investing in derivatives could lose more than the amount invested.

**Past performance is not a guarantee or a reliable indicator of future results.**



**State of Connecticut  
Office of the Treasurer**

SHAWN T. WOODEN  
TREASURER

June 5, 2020

Members of the Investment Advisory Council

***Re: Report on the Connecticut Retirement Plans and Trust Funds' Statutory  
Investment Restrictions***

Dear Fellow IAC Member,

Attached you will find a report on the Connecticut Retirement Plans and Trust Funds' restricted investments in certain companies doing business in Iran, Northern Ireland and Sudan, pursuant to sections 3-13g, 3-13h and 3-21e of the Connecticut General Statutes.

Sincerely,

A handwritten signature in blue ink that reads "Shawn T. Wooden".

Shawn T. Wooden  
State Treasurer

OFFICE OF THE STATE TREASURER  
MEMORANDUM

---



**TO:** The Honorable Shawn T. Wooden, State Treasurer

**CC:** Laurie Martin, Chief Investment Officer

**FROM:** Christine Shaw, Assistant Treasurer for Policy

**DATE:** June 4, 2020

**SUBJECT:** *Report on the Connecticut Retirement Plans and Trust Funds' Activities under Various Statutory Investment Restrictions*

### **INTRODUCTION**

Pursuant to sections 3-13g, 3-13h and 3-21e of the Connecticut General Statutes, the Treasurer reports to the Investment Advisory Council ("IAC") each fiscal year on actions taken related to investment restrictions concerning companies doing business in Iran, Northern Ireland and Sudan. I am hereby submitting this report for purposes of updating the IAC during Fiscal Year 2020.

### **DISCUSSION**

#### **Northern Ireland**

Connecticut's MacBride law, as set forth in Section 3-13h of the Connecticut General Statutes, is based on the MacBride Principles, which are a corporate code of conduct for companies doing business in Northern Ireland designed to address religious discrimination in the workplace. The provisions of this section expired on January 1, 2020, thereby allowing managers to purchase the securities of two companies that had previously been restricted (i.e., Domino's Pizza Inc. and Yum Brands, Inc.).

#### **Iran**

Companies doing business in Iran that are specifically restricted from investment by the CRPTF's managers are set forth on the attached lists. However, as a practical matter, investment in virtually any company doing business in Iran is restricted by virtue of two factors: the United States' withdrawal from the Joint Comprehensive Plan of Action ("JCPOA" or "Iran nuclear deal") in May of 2018, as well as reimposition of sanctions by the Trump administration.

That said, during Fiscal Year 2020, one company was removed from the restricted list – Daelim – based on its representations that it had ceased all business activities in Iran. These representations were confirmed by MSCI, the CRPTF's third party research provider.

Sudan

The United States eliminated most economic sanctions on Sudan in October of 2017; however, it remains designated by the U.S. Department of State as a sponsor of terrorism, and has been so since 1993.

Currently, Connecticut restricts investment in eighteen companies doing business in Sudan.

Companies on the CRPTF's Restricted Companies List are attached.

## Restricted Companies List

### Iran

Pursuant to Section 3-13g of the Connecticut General Statutes, the Office of the Treasurer prohibits direct investment in the following companies:

China National Offshore Oil Corporation and the following subsidiaries:

- China Bluechemical
- China Oilfield Services Ltd.
- CNOOC
- Offshore Oil Engineering Co.

Indian Oil Corporation Ltd. (IOCL) and the following subsidiaries:

- Bongaigaon Refinery & Petrochemicals
- Chennai Petroleum Corp. Ltd.
- IBP Co. Ltd.
- Lanka Ioc plc

Oil India Ltd.  
Petroleos de Venezuela S.A.  
Ca La Electricidad de Caracas

### Sudan

Pursuant to Section 3-21e of the Connecticut General Statutes, the Office of the Treasurer prohibits direct investment in the following companies:

Bharat Heavy Electricals Ltd.

China North Industries Group and the following subsidiaries:

- China North Industries Corporation a.k.a. NORINCO
- NORINCO International Cooperation Ltd.
- North Huajin Chemical Industries Co. Ltd.
- North Navigation Control Technology Co. Ltd.

China Petroleum and Chemical Corp.

CNPC (Hong Kong)

Dongfeng Motor Corporation

Jiangxi Hongdu Aviation Industry Ltd.

Oil and Natural Gas Corp. and the following subsidiaries:

- Mangalore Refinery and Petrochemicals Ltd.
- ONGC Nile Ganga BV, Amsterdam
- ONGC Videsh Limited
- ONGC Videsh Vankorneft
- PetroChina Co. Ltd.
- Petronas Capital Ltd.
- Sinopec Shanghai Petrochemical Corp.



**State of Connecticut**  
**Office of the Treasurer**

SHAWN T. WOODEN  
 TREASURER

June 5, 2020

Members of the Investment Advisory Council ("IAC")

**Re: Private Capital Consulting Services Search**

Dear Fellow IAC Member:

At the June 10, 2020 meeting of the IAC, I will present for your information the proposed project plan for the purposes of procuring a consultant for the Connecticut Retirement Plans and Trust Funds' ("CRPTF") private equity and private credit ("Private Capital") allocations and investment portfolios. My office will conduct a competitive search through a Request for Proposal ("RFP"), which will include the required screening and selection criteria summarized in the attachment hereto.

The scope of the Private Capital consultant mandate would encompass, but not be limited to the following: (1) advising on investment strategy, portfolio construction, and commitment pacing; (2) conducting due diligence on prospective investment managers, including an assessment of each manager's Environmental, Social, and Governance policies and practices; (3) monitoring and reporting at the portfolio and fund level; and, (4) access to research, information, and educational services to optimize the investment returns of the CRPTF's private equity and private credit portfolios.

Currently, our private equity and private credit consulting services are provided through separate contracts with StepStone and Meketa, respectively. As a result of an RFP process conducted in 2014 and 2015, StepStone began providing consulting services to the Private Investment Fund in October 2015 and its current contract is scheduled to expire on September 30, 2020. Through an RFP process conducted in 2019, Meketa was chosen to provide consulting services to the Alternative Investment Fund, including its opportunistic private credit portfolio, in July 2019. With the amendments to the Investment Policy Statement adopted in February 2020, a new private credit allocation was established and Meketa continued to provide private credit consulting services.

The proposed RFP would provide the CRPTF with the opportunity to consolidate Private Capital consulting services with one firm, thus providing the benefits of enhanced services as well as increased staff and fee efficiencies. The proposed RFP project plan is designed to complete the comprehensive search, selection, and contracting processes in accordance with state procurement policies. We will work with our current consultants to ensure there are no disruptions in service while the new consulting contract is put in place.

I look forward to discussing this search with you at the June 10th IAC meeting.

Sincerely,

*Shawn T. Wooden*

Shawn T. Wooden  
 State Treasurer

**State of Connecticut Retirement Plans & Trust Funds**  
**Private Capital Consulting Services**  
***Proposed Project Plan***

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<b>GENERAL PROCESS</b>	<b>Timing</b>	<b>PFM</b>	<b>Treasurer</b>	<b>IAC</b>
Review and Approve Draft RFP and Proposed Project Plan and Search Criteria	Week of June 1, 2020	Incorporate Treasurer's comments; send to Treasurer for approval	Review and approve project action plan	
Present Proposed Project Plan/Selection Criteria	June 10, 2020		Present to IAC	Comment and advise
Issue RFP	June 19, 2020	Post RFP on Treasurer's website		
RFP Deadline	July 17, 2020	Verify submissions		
Conduct Due Diligence and Select Semi-Finalists	July – Aug. 2020	Review RFP responses; conduct due diligence, interview candidates and provide semi-finalist recommendations	Review recommendation and approve semi-finalist candidates	
Interview Semi-Finalists	Aug. – Sep. 2020	Participate in interviews	Interview firms/ Select finalist(s) for presentation at September 9 <sup>th</sup> IAC meeting	IAC invited to participate in interviews
Present Treasurer's Recommendation to IAC	September 9, 2020 <sup>1</sup>		Present finalist(s) and request waiver of 45-day comment period to IAC	Review Treasurer's recommendation and communicate feedback. Act on waiver request
Treasurer's Review	Week of September 9, 2020		Consider feedback of IAC	
Designate Preferred Vendor	Week of Sep. 14, 2020		Finalize selection/designate Preferred Vendor. Announce decision to IAC at October 14 <sup>th</sup> meeting	
Notify Preferred Vendor	Week of Sep. 14, 2020	Draft Preferred Vendor notification letter	Issue notification letter	
Negotiate Fee and Contract Terms	Initiate Sep/Oct if IAC waives comment period.	Participate in negotiations; prepare and review contract and submit to Treasurer for approval	Approve contract terms and consultant fees; sign contract	
Obtain Final Contract Authorization	October 2020	Work with the Attorney General's Office to secure final execution of contract		
Award Contract	October 2020			

<sup>1</sup>45-day comment period ends October 24, 2020.

**State of Connecticut Retirement Plans & Trust Funds**  
**Private Capital Consulting Services**  
**Screening and Selection Criteria<sup>2</sup>**

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**1. Organization/Management**

- a. Firm size, management, and ownership
- b. Stability (financial and organization)
- c. Size and experience of professionals/team dedicated to private equity and private credit consulting and monitoring services
- d. Technology and reporting capabilities
- e. Commitment to client service excellence with the resources available to support the CRPTF's on-going needs
- f. Transparency and accuracy of communication
- g. Duty of care/loyalty to client with no potential conflicts of interest with Firm's other business lines
- h. Risk management – organization, process and security

**2. Relevant Experience and Client Base**

- a. Expertise in providing consulting services for domestic and international private credit and private equity allocations and portfolios
- b. Independent research to support investment strategy development and execution, including quantitative and qualitative analysis of managers, strategies, and market developments
- c. Depth and strength of investment research staff, including proven capabilities to identify and evaluate top-performing managers as well as sophisticated skills providing absolute and relative performance analysis, benchmarking, and attribution
- d. Well-established and experienced team and practices to ensure that the CRPTF's reporting, monitoring, compliance, and other requirements are delivered at the highest levels of timeliness and quality
- e. Client access to information services and platforms used for portfolio monitoring, reporting, and research
- f. Consulting philosophy and team cohesion, number of years firm and management team have provided similar consulting services to institutional clients, specifically public pension plans
- g. References from public pension and other clients similar to the CRPTF
- h. Number of client relationships added and terminated in last five years
- i. General understanding of the CRPTF's existing private credit and private equity portfolios and on-going consulting needs

**3. Other Specific Criteria**

- a. Responsible corporate citizenship and commitment to CRPTF's Policies (e.g., Diversity Principles, Responsible Gun Policy)
- b. Incorporation of Environmental, Social and Governance issues into the investment strategy development and selection process
- c. Possible site visit
- d. Manager's identification of any terms of the CRPTF's Personal Services Agreement that are not negotiable

**4. Cost of Proposal**

<sup>2</sup>Such factors as conformance with RFP instructions/specifications and state-mandated contractual terms and disclosure requirements.



**State of Connecticut**  
**Office of the Treasurer**

SHAWN T. WOODEN  
 TREASURER

June 5, 2020

Members of the Investment Advisory Council (“IAC”)

**Re: Convertible Bond Fund Investment Manager Search**

Dear Fellow IAC Member:

At the June 10, 2020 meeting of the IAC, I will present for your information the proposed project plan and required screening and selection criteria for the purpose of procuring a convertible bond strategy investment manager that will fit in the High Yield Debt Fund (“HYDF”) for the Connecticut Retirement Plans and Trust Funds (“CRPTF”). My office will conduct a competitive search through a Request for Proposal (“RFP”), resulting in the hiring of one or possibly more managers

Convertible bonds are securities that can be converted into common stock and fit within the framework of HYDF. HYDF’s goal is to achieve a long-term, real rate of return above the inflation rate and utilize a range of manager styles to capture total return. The inclusion of high yield fixed income class will provide a source of diversification to other asset classes within the CRPTF given different economic environments. This manager search will enable the CRPTF to obtain an opportunistic fund appropriate to the purpose of HYDF.

Currently, we do not have a convertible strategy in the portfolio. This market offers both principal preservation in down markets through the bond structure and participation in up markets through the equity structure. Dislocations in the convertible market as a result of the COVID-19 crisis, record new issuance, and projected continued volatility in markets has created a rare buying opportunity in convertible bonds. Because this is an opportunistic allocation and short term in nature, the fund will be set up with a clear start and end date for the manager.

I look forward to discussing this search with you at the June 10<sup>th</sup> IAC meeting.

Sincerely,

*Shawn T. Wooden*

Shawn T. Wooden  
 State Treasurer

**State of Connecticut Retirement Plans & Trust Funds**  
**Opportunistic Convertible Fund Investment Manager Search**  
***Proposed Project Plan***

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<b>GENERAL PROCESS</b>	<b>Timing</b>	<b>PFM</b>	<b>Treasurer</b>	<b>IAC</b>
Review and Approve Draft RFP and Proposed Project Plan and Search Criteria	Week of June 1, 2020	Incorporate Treasurer's comments; send to Treasurer for approval	Review and approve project action plan	
Present Proposed Project Plan/Selection Criteria	June 10, 2020		Present to IAC	Comment and advise
Issue RFP	June 19, 2020	Post RFP on Treasurer's website		
RFP Deadline	July 10, 2020	Verify submissions		
Conduct Due Diligence and Select Semi-Finalists	July 2020	Review RFP responses; Conduct due diligence, interview candidates and provide semi-finalist recommendations	Review recommendation and approve semi-finalist candidates	
Interview Semi-Finalists	July 2020	Participate in interviews	Interview firms/ Select finalist(s) for presentation to the Treasurer during 2 <sup>nd</sup> half of July 2020	IAC invited to participate in interviews
Present Treasurer's Recommendation to IAC	August 12, 2020		Present finalist(s) at August 12 <sup>th</sup> IAC meeting and request waiver of 45-day comment period <sup>1</sup>	Review Treasurer's recommendation and communicate feedback. Act on waiver request
Designate Preferred Vendor	Week of August 17, 2020		Finalize selection/designate Preferred Vendor. Announce decision to IAC at September 9 <sup>th</sup> meeting	
Notify Preferred Vendor	Week of August 17, 2020	Draft Preferred Vendor notification letter	Issue notification letter	
Negotiate Fee and Contract Terms	Initiate August if IAC waives comment period.	Participate in negotiations; prepare and review contract and submit to Treasurer for approval	Approve contract terms and consultant fees; sign contract	
Obtain Final Contract Authorization	September 2020	Work with the Attorney General's Office to secure final execution of contract		
Award Contract	September 2020			

<sup>1</sup>45 day comment period ends September 28, 2020

**State of Connecticut Retirement Plans & Trust Funds**  
**Opportunistic Convertible Fund Investment Manager Search**  
**Screening and Selection Criteria<sup>2</sup>**

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**1. Organization/Management**

- a. Firm size, management, and ownership
- b. Stability (financial and organization)
- c. Technology infrastructure (e.g., for trading, analytics, operations, compliance, cybersecurity, and reporting)
- d. Risk management – organization, process and integration
- e. Compliance operations
- f. Client service resources and coverage
- g. Commitment of firm to investment services (e.g., revenue percentage from investment management business)
- h. Percentage of institutional assets under management
- i. Number and dollar amounts of client relationships gained and lost over past five years

**2. Relevant Experience and Client Base**

- a. Overall investment management experience of the convertible bond investment management team
- b. Research, trading and analytics teams supporting the convertible bond portfolio managers
- c. Minimum three-year performance track record against convertible bond indices and peer comparison for similar strategy
- d. Investment process
- e. Quality and timeliness of performance attribution reporting, monitoring, compliance and other CRPTF reporting requirements
- f. Assets under management in convertible bond strategies at year end over the past five years
- g. Experience with and references from pension funds or similar institutional clients
- h. General understanding of CRPTF investment needs

**3. Other Specific Criteria**

- a. Responsible corporate citizenship and commitment to CRPTF's Policies (e.g., Diversity Principles, Guns)
- b. Incorporation of Environmental, Social and Governance issues into the investment selection process
- c. Possible site visit
- d. Manager's identification of any terms of CRPTF's Investment Management Agreement that are not negotiable

**4. Cost of Proposal**

<sup>2</sup>Such factors as conformance with RFP instructions/specifications and state-mandated contractual terms and disclosure requirements.

## Shawn Wooden: Corporate America, it's time to stand up against racism

By SHAWN T. WOODEN

SPECIAL TO HARTFORD COURANT | MAY 30, 2020 | 6:00 AM



Protestors demonstrate on University Avenue while holding a "WE CAN'T BREATHE" sign and wearing protective masks, Thursday, May 28, 2020, in St. Paul, Minn. Protests over the death of George Floyd, a black man who died in police custody Monday, broke out in Minneapolis for a third straight night.(John Minchillo/AP)

I am a proud American, and I am having trouble breathing in the country I love.

Even though the Declaration of Independence stated that Americans have the unalienable rights to life, liberty and the pursuit of happiness, these are realities for some yet remain out of reach for far too many.

As the father of two black teenage boys, I had "the talk" with my oldest son, prompted after I was pulled over for allegedly turning without signaling. Many black parents have accepted the necessity of warning their kids about driving while

black, and what to do in the event they are stopped. It is a dreaded ritual for us — it's so difficult to explain to our children the danger they may face when venturing out beyond our reach.

But I never expected that my son, a runner, would ask if it was safe to jog while black.

Sadly, Ahmaud Arbery's murder isn't shocking. Neither is the failure of Georgia's criminal justice system to respond until after a video emerged publicly. In the case of George Floyd, fortunately, his brutal killing by Minneapolis police officers was captured on tape, too. Also appalling was the Central Park encounter of Christian Cooper, a bird watcher who experienced an indignant dog walker, Amy Cooper, who engaged in weaponizing the color of his skin with a quick call to 911. That was a chilling reminder of the jeopardy that black men face every day. However, the New York City police department has yet to charge her for making a false report.

In a move we rarely see as a response, her previous employer, Franklin Templeton, an investment firm that manages millions for Connecticut's pension funds under my purview, took swift and transparent action in her firing. They wrote to me and shared: "Franklin Templeton does not tolerate racism of any kind."

Government has failed. Law enforcement has failed. Social and financial institutions have failed. In a nation with such powerful ideals and global leadership in human rights and innovation, this persistent systemic failure should be unacceptable. If we want to see change, it is incumbent upon us all to recognize the killing of unarmed black people as the existential crisis that it is.

While no one action will solve the racial problems America faces, this much is certain: We cannot continue doing the same things and expect different results. It is time for the wealthy and privileged to start pulling the levers of power they hold. Wall Street and corporate America, I'm speaking to you.

There is precedent for corporate America playing a constructive role in advancing social change. Its economic boycott efforts helped to end apartheid in South Africa, and more recently, helped to stop North Carolina's so-called "Bathroom Bill" from discriminating against members of the LGBTQ community. Just imagine if the NBA, NCAA, NFL, Jet Blue and Delta took similar stands in states with poor records on

criminal justice. Corporate America can and should act as if racial injustice is bad for business — because it is.

Our justice system offers inconsistent protections, and the murders of unarmed black Americans are rampant. Between 2013 and 2019, there were 204 unarmed black men in the United States who were shot and killed by police who were on-duty, and in 188 of these incidents, there were no known criminal charges filed against the officer. And let's face it: we know a lot more about these incidents because of these videos.

I should also note that, as someone who was grateful to work with police and a prosecutor to bring the killer of my cousin to justice, I know there are good people in law enforcement who honor their oath to protect and serve.

When I was growing up, my parents would take us on summer trips to Georgia, their home state. I recall one time when we stopped at a motel to rent a room to freshen up after having been on the road all day. The parking lot was empty, and yet still, the motel manager looked at us and said, "We're all filled up right now." There wasn't a car in sight.

As a family, we talked about it, understood it for the racial discrimination that it was, and we kept going. Black Americans still experience hard moments like this, daily. The truth is, if we display our anger and hurt externally, it rarely ends well. And if we internalize it constantly, it's hard to function. It's for that reason that we keep moving; it's how we have learned to survive.

America has been on a painfully slow and zigzagging march towards racial equality, but leadership matters. Our current president does nothing but exacerbate tensions to fuel hate, and as a country, we are still uncomfortable with discussing, let alone addressing, the deeply harmful impacts of racism. It's seen in the economic, health, education and criminal justice disparities we see every day but largely ignore.

With COVID-19, black men are now expected to wear masks to protect themselves and others, but even without masks, we are criminalized while walking, jogging, driving and just being. As a state treasurer overseeing more than \$60 billion, I am well aware of the power of capital in America. So, to Wall Street and businesses

across America, hear us: We want to live, and we need you to get off the sidelines. Joining with advocates, you have the power and the resources to change the trajectory of this country.

We cannot delay any longer. I just want our sons to grow up in an America where they can breathe and pursue their dreams.

*State Treasurer Shawn T. Wooden is the only African-American elected state treasurer in the United States and the only African-American elected official serving statewide in New England. Prior to being sworn in as the 83rd state treasurer, he spent 21 years as an investment lawyer in a large law firm where he was the only African-American partner. He is also the secretary-treasurer of the National Association of State Treasurers.*

# Steady Habits: Shawn Wooden is 'having trouble breathing in the country I love'

"This is the America I know," State Treasurer Shawn Wooden says, reflecting on a lifetime spent facing systemic racism. "And this America continues to scare me."



Ep. 15: Shawn Wooden Is 'Having Trouble Breathing In The Country I Love'

00:00:00



Spotify



**Date: Wednesday, June 3, 2020**

State Treasurer Shawn Wooden was born and raised in Hartford. He graduated from Trinity College, worked as a corporate lawyer in the city and served as city council president.

He's seen firsthand how systemic racism limits access to housing, education and opportunity in Connecticut's cities. Police shootings of unarmed men and high rates of police stops of people of color in the suburbs aren't just news reports or statistics for him.

"This is the America I've been working to change much of my life," Wooden says.

He talks about with John Dankosky about his life, his work and his recent column in the Hartford Courant calling on Wall Street and corporate America to do more to combat systemic racism.

Listen to the episode using the player above or read an edited transcript of the conversation below.



\*



**State of Connecticut**  
**Office of the Treasurer**

SHAWN T. WOODEN  
TREASURER

**M E M O R A N D U M**

**TO:** **Members of Investment Advisory Council**  
**FROM:** **Shawn T. Wooden, State Treasurer and Council Secretary**  
**DATE:** **June 5, 2020**  
**SUBJECT:** **Investment Advisory Council Meeting – June 10, 2020**

Enclosed is the agenda package for the Investment Advisory Council meeting on Wednesday, June 10, 2020 starting at 9:00 A.M.

The following subjects will be covered at the meeting:

**Item 1: Approval of the Minutes of the May 13, 2020 IAC Meeting**

**Item 2: Opening Comments by the Treasurer**

**Item 3: Update on the Market and the CRPTF Performance**

Laurie Martin, Chief Investment Officer, will provide an update on the capital market environment and will report on the following:

- The CRPTF performance as of April 30, 2020

**Item 4: Quarterly Performance Reports**

- Alternative Investment Fund review as of March 31, 2020
- Private Investment Fund Review as of December 31, 2019
- Real Estate Fund review as of December 31, 2019

**Item 5: Presentation by and Consideration of the Finalists for the Emerging Market Debt Fund Manager Search**

Lyndsey Farris, Principal Investment Officer, will provide opening remarks and introduce the following firms that will present for the Emerging Market Debt Fund mandate:

- Aberdeen Standard Investments
- Eaton Vance Management
- Payden & Rygel
- PIMCO

**Item 6: Report on the Connecticut Retirement Plans and Trust Funds' Statutory Investment Restrictions**

This report will provide information on the CRPTF Compliance Policy for Implementation of Statutory Investment Restrictions.

**Item 7: Review of the Private Capital Consulting Services Search**

Mark Evans, Principal Investment Officer, will provide an overview of the project plan timeline and screening/selection criteria for the private capital consulting services search.

**Item 8: Review of the Convertible Bond Investment Management Search**

Lyndsey Farris, Principal Investment Officer, will provide an overview of the project plan timeline and screening/selection criteria for a standalone convertible bond strategy search.

**Item 9: Other Business**

- News Clips
- Discussion of the preliminary agenda for the July 8, 2020 IAC meeting

**Item 10: Comments by the Chair**

We look forward to reviewing these agenda items with you at the June 10<sup>th</sup> meeting.

If you find that you are unable to attend this meeting, please call Katrina Farquhar at (860) 702-3110.

STW/kf

Enclosures

**SUCH MINUTES ARE IN DRAFT FORM AND SUBJECT TO THE FINAL REVIEW  
AND APPROVAL OF THE INVESTMENT ADVISORY COUNCIL**

**MEETING NO. 475**

**Members present:** Thomas Fiore, representing Secretary Melissa McCaw

Joshua Hall

Michael Knight

Michael LeClair

Steven Muench

William Murray

Patrick Sampson

D. Ellen Shuman, Chair

Carol Thomas

State Treasurer Shawn T. Wooden, Secretary

**Others present:** Laurie Martin, Chief Investment Officer  
Kevin Cullinan, Chief Risk Officer  
Mark Evans, Principal Investment Officer  
Katrina Farquhar, Executive Assistant  
Lyndsey Farris, Principal Investment Officer  
John Flores, General Counsel  
Karen Grenon, Legal Counsel  
Darrell Hill, Deputy Treasurer  
Barbara Housen, Chief Compliance Officer, Deputy General Counsel  
Danita Johnson, Principal Investment Officer  
Harvey Kelly, Analyst  
Casi Kroth, Investment Officer  
Raynald Lévèque, Deputy Chief Investment Officer  
Steve Meier, Senior Principal Investment Officer  
Paul Osinloye, Principal Investment Officer  
Olivia Wall, Investment Officer

**Guests:** Kevin Alcala, Goldman Sachs  
Tim Atkinson, Meketa Investment Group  
Drianne Benner, Appomattox  
LaRoy Brantley, Meketa Investment Group  
Judy Chambers, Meketa Investment Group  
Brandon Colon, Meketa Investment Group  
Clare Connolly, Cohen & Steers  
Mike Elio, StepStone  
Marilyn Freeman, Capital Prospects  
Will Greene, Loop Capital  
Deirdre Guice Minor, T. Rowe Price  
Mary Mustard, Meketa Investment Group

Wednesday, May 13, 2020

Fran Peters, HarbourVest  
William Rejeski, Goldman Sachs  
Matt Ritter, NEPC  
Richard Ross, CT Resident  
Lisa Rotenberg, Goldman Sachs  
Liz Smith, AllianceBernstein  
Chad Treadway, CT Resident  
Ann Parker Weeden, AllianceBernstein  
Ryan Wagner, T. Rowe Price  
Peter Woolley, Meketa Investment Group

With a quorum present, Chair D. Ellen Shuman called the Investment Advisory Council (“IAC”) meeting to order at 9:05 a.m.

### **Comments by the Chair**

Newly appointed chair, Ms. Shuman gave a brief introduction, which included her background and investment experience.

### **Approval of Minutes of the April 23, 2020 IAC Meeting**

Chair Shuman called for a motion to accept the minutes of the April 23, 2020 IAC meeting. **William Murray moved to approve the minutes of the April 23, 2020 IAC meeting. The motion was seconded by Joshua Hall. There was one correction from Thomas Fiore and one abstention from the newly appointed Chair. The IAC members took a moment to recognize and thank Carol Thomas for her role as interim IAC chair.** Chair Shuman called for a motion to accept the minutes as amended of the April 23, 2020 IAC meeting. **There being no further discussion, the Chair called for a vote and the motion passed.**

### **Comments by the Treasurer**

Treasurer Wooden welcomed IAC members and the new Chair noting that Ms. Shuman is joining the IAC at a crucial time in the markets and that her investment experience will be very valuable in the months and years ahead. He stated that the month of May is a time to celebrate the front line heroes and teachers that make a difference in our lives each day and thanked them for their service. He reviewed current corporate governance initiatives and stated that on April 23<sup>rd</sup>, we co-filed a resolution calling on Johnson & Johnson’s board of directors to investigate and report to investors on opioid-related risks to the company. He stated that after given consideration to the feedback from the IAC following the extensive due diligence conducted by our in house staff and external consultants, he has decided to proceed with commitments to Altaris Health Partners V, L.P., Hg Genesis 9, L.P., Hg Saturn 2, L.P., Homestead Capital USA Farmland Fund III, L.P. and Rockpoint Real Estate Fund VI, L.P. Finally, he announced that two investments were under consideration at the meeting today for the Private Investment Fund (“PIF”).

### **Economic and Market Update**

Meketa Investment Group provided an update on the market and economy and led a discussion on endpoint bias relative to investment performance.

**Private Market Pacing Plans**

Mark Evans, Principal Investment Officer (“PIO”), and Danita Johnson, PIO, reviewed the pacing plans for our private market investments.

**Watch List Process Update**

Kevin Cullinan, Chief Risk Officer, provided an update on the Watch List process.

**Presentation by and Consideration of Stellex Capital Partners II, L.P.**

Mr. Evans provided opening remarks and introduced Stellex Capital Partners II, L.P. (“Stellex”), a PIF opportunity.

Stellex, represented by Raymond Whiteman, Managing Partner along with Michael Stewart, Managing Partner, made a presentation to the IAC.

**Roll Call of Reactions for the Stellex Capital Partners II, L.P. PIF opportunity.**

Messrs. Murray, Hall, Knight, Fiore, Michael LeClair, Steven Muench, Patrick Sampson, Ms. Thomas and Chair Shuman provided feedback on Stellex. Chair Shuman called for a motion to waive the 45-day comment period. **A motion was made by Mr. Murray, seconded by Mr. Hall, to waive the 45-day comment period for Stellex. There being no discussion, the Chair called for a vote and the motion passed.**

**Presentation by and Consideration of Leeds Equity Partners VII, L.P.**

Mr. Evans provided opening remarks and introduced Leeds Equity Partners VII, L.P. (“Leeds VII”), a PIF opportunity.

Leeds VII, represented by Jeffrey Leeds, Managing Partner and Jacques Galante, Partner, made a presentation to the IAC.

**Roll Call of Reactions for the Leeds Equity Partners VII, L.P. PIF opportunity.**

Messrs. Murray, Muench, Knight, Hall, Sampson, LeClair, Ms. Thomas and Chair Shuman provided feedback on Leeds VII. Chair Shuman called for a motion to waive the 45-day comment period. **A motion was made by Mr. Hall, seconded by Ms. Thomas, to waive the 45-day comment period for Leeds VII. There being no discussion, the Chair called for a vote and the motion passed.**

**Other Business**

Chair Shuman noted the next meeting will be held on June 10, 2020. She invited the council members to submit agenda items. There being no further business, the Chair called for a motion to adjourn the meeting. **Mr. Murray moved to adjourn the meeting and the motion was seconded by Ms. Thomas. There being no discussion, the meeting was adjourned at 1:23 p.m.**



## TEACHER'S RETIREMENT FUND

Net of All Fees and Expenses

Periods Ending April 30, 2020

AGENDA ITEM #3

Funds	Percent Holdings	Compound, annualized returns												
		Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
<b>Benchmark</b>														
<b>Teacher's Retirement Fund</b>	<b>100.0%</b>													
Policy Benchmark					\$17,336.8	5.22	-9.07	-4.30	-9.28	-3.10	3.43	4.31	5.42	6.36
Dynamic Benchmark						4.87	-8.09	-3.12	-8.30	-0.67	4.28	4.49	5.61	6.61
						5.34	-7.99	-2.94	-8.27	-1.18	4.14	4.35	5.38	N/A
<b>Domestic Equity</b>	<b>21.6%</b>	<b>20.0</b>	15.0	25.0	\$3,753.2	13.00	-10.16	-0.79	-10.07	-0.95	8.02	8.34	10.71	11.12
<i>Russell 3000</i>						13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	11.29
<b>Developed Markets ISF</b>	<b>11.4%</b>	<b>11.0</b>	6.0	16.0	\$1,983.7	7.21	-15.45	-12.00	-17.52	-11.59	-1.00	1.21	3.72	5.00
<i>MSCI EAFE IMI Net</i>						7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	3.91	4.96
<b>Emerging Markets ISF</b>	<b>9.7%</b>	<b>9.0</b>	4.0	14.0	\$1,683.0	8.72	-12.21	-9.31	-16.07	-8.65	0.49	0.91	0.72	1.82
<i>MSCI Emerging Markets IMI</i>						9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	0.44	1.26
<b>Core Fixed Income</b>	<b>16.4%</b>	<b>16.0</b>	11.0	21.0	\$2,850.1	2.16	2.41	6.83	4.32	9.78	4.38	3.38	2.89	3.80
<i>Barclays U.S. Aggregate Bond Index</i>						1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96
<b>Emerging Market Debt</b>	<b>5.5%</b>	<b>5.0</b>	0.0	10.0	\$949.5	3.04	-15.56	-13.39	-15.57	-9.33	-1.71	1.14	-0.32	2.80
<i>50% JPM EMBI Global Div / 50% JPM GBI EM Global Div</i>						3.08	-11.74	-8.19	-11.63	-3.77	0.45	1.76	0.15	3.62
<b>High Yield</b>	<b>6.1%</b>	<b>6.0</b>	1.0	11.0	\$1,060.6	3.72	-9.83	-6.38	-9.29	-5.65	0.91	2.47	2.91	5.15
<i>Bloomberg Barclays U.S. High Yield 2% Issuer Cap Index</i>						4.53	-9.38	-5.95	-9.39	-5.03	1.47	2.96	3.26	5.51
<b>Inflation Linked Bonds</b>	<b>5.2%</b>	<b>5.0</b>	0.0	10.0	\$906.8	3.74	-2.24	1.88	-0.56	4.20	2.86	1.73	0.66	2.85
<i>Barclays World Gov't Inflation Linked Bond Index</i>						3.68	-1.07	3.00	1.19	5.64	3.11	2.29	0.91	2.99
<b>Liquidity Fund</b>	<b>2.9%</b>	<b>1.0</b>	0.0	3.0	\$499.6	0.08	0.31	1.55	0.47	1.98	1.97	1.39	0.83	0.81
<i>50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index</i>						0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84
<b>Real Estate<sup>(1)</sup></b>	<b>6.4%</b>	<b>10.0</b>	5.0	15.0	\$1,109.8	N/A	-5.86	-2.91	-5.21	-1.97	4.38	6.84	8.05	8.33
<i>ODCE Index 1Q in Arrears<sup>^</sup></i>						N/A	-6.11	-3.94	-6.11	-2.57	3.60	6.35	7.77	9.21
<b>Private Investment<sup>(1)</sup></b>	<b>6.6%</b>	<b>10.0</b>	5.0	15.0	\$1,150.4	N/A	-16.47	-11.19	-16.45	-6.90	6.86	8.96	10.05	10.65
<i>Russell 3000 + 250 basis points 1Q in Arrears<sup>^</sup></i>						N/A	-16.69	-11.30	-16.69	1.54	4.82	6.57	9.36	10.38
<b>Alternative Investment Fund</b>	<b>8.0%</b>	<b>7.0</b>	2.0	12.0	\$1,390.0	0.43	-9.33	-6.52	-9.05	-5.81	0.77	0.92	2.30	N/A
<i>Absolute Return Strategy blended benchmark<sup>(2)</sup></i>						0.67	1.60	4.53	1.98	5.51	3.77	2.36	1.69	N/A

<sup>(1)</sup> Actual performance, reported one quarter in arrears,

has been adjusted for anticipated losses experienced in the markets during the March 2020 quarter.

<sup>(2)</sup> A blended benchmark comprised of the weightings of each of the investments utilized within the fund of funds vehicle multiplied by their respective benchmarks as of April 2020.



## STATE EMPLOYEES' RETIREMENT FUND

Net of All Fees and Expenses

Periods Ending April 30, 2020

Funds	Percent Holdings	Compound, annualized returns												
		Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
<b>State Employees' Retirement Fund</b>	100.0%				\$12,460.1	5.30	-9.08	-4.33	-9.30	-3.17	3.52	4.35	5.45	6.41
Policy Benchmark						4.87	-8.09	-3.12	-8.30	-0.67	4.28	4.48	5.61	6.64
Dynamic Benchmark						5.42	-8.01	-2.96	-8.30	-1.23	4.23	4.44	5.47	N/A
<b>Domestic Equity</b>	21.9%	20.0	15.0	25.0	\$2,722.9	13.00	-10.16	-0.79	-10.07	-0.95	8.02	8.34	10.71	11.11
<i>Russell 3000</i>						13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	11.29
<b>Developed Markets ISF</b>	11.7%	11.0	6.0	16.0	\$1,451.9	7.21	-15.45	-12.00	-17.52	-11.59	-1.00	1.21	3.72	5.00
<i>MSCI EAFE IMI Net</i>						7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	3.91	4.96
<b>Emerging Markets ISF</b>	9.9%	9.0	4.0	14.0	\$1,227.6	8.72	-12.21	-9.31	-16.07	-8.65	0.49	0.91	0.72	1.82
<i>MSCI Emerging Markets IMI</i>						9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	0.44	1.26
<b>Core Fixed Income</b>	16.7%	16.0	11.0	21.0	\$2,076.5	2.16	2.41	6.83	4.32	9.78	4.38	3.38	2.89	3.80
<i>Barclays U.S. Aggregate Bond Index</i>						1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96
<b>Emerging Market Debt</b>	5.5%	5.0	0.0	10.0	\$690.4	3.04	-15.56	-13.39	-15.57	-9.33	-1.71	1.14	-0.32	2.80
<i>50% JPM EMBI Global Div / 50% JPM GBI EM Global Div</i>						3.08	-11.74	-8.19	-11.63	-3.77	0.45	1.76	0.15	3.62
<b>High Yield</b>	6.1%	6.0	1.0	11.0	\$765.1	3.72	-9.83	-6.38	-9.29	-5.65	0.91	2.47	2.92	5.16
<i>Bloomberg Barclays U.S. High Yield 2% Issuer Cap Index</i>						4.53	-9.38	-5.95	-9.39	-5.03	1.47	2.96	3.26	5.51
<b>Inflation Linked Bonds</b>	5.3%	5.0	0.0	10.0	\$659.4	3.74	-2.24	1.88	-0.56	4.20	2.86	1.73	0.66	2.85
<i>Barclays World Gov't Inflation Linked Bond Index</i>						3.68	-1.07	3.00	1.19	5.64	3.11	2.29	0.91	2.99
<b>Liquidity Fund</b>	1.6%	1.0	0.0	3.0	\$200.1	0.08	0.31	1.55	0.47	1.97	1.98	1.40	0.84	0.81
<i>50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index</i>						0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84
<b>Real Estate<sup>(1)</sup></b>	6.5%	10.0	5.0	15.0	\$809.2	N/A	-5.86	-2.91	-5.21	-1.97	4.38	6.84	8.05	8.34
<i>ODCE Index 1Q in Arrears<sup>^</sup></i>						N/A	-6.11	-3.94	-6.11	-2.57	3.60	6.35	7.77	9.21
<b>Private Investment<sup>(1)</sup></b>	6.8%	10.0	5.0	15.0	\$848.4	N/A	-16.47	-11.19	-16.45	-6.90	6.86	8.96	10.06	10.65
<i>Russell 3000 + 250 basis points 1Q in Arrears<sup>^</sup></i>						N/A	-16.69	-11.30	-16.69	1.54	4.82	6.57	9.36	10.38
<b>Alternative Investment Fund</b>	8.1%	7.0	2.0	12.0	\$1,008.6	0.43	-9.33	-6.52	-9.05	-5.81	0.77	0.92	2.30	N/A
<i>Absolute Return Strategy blended benchmark<sup>(2)</sup></i>						0.67	1.60	4.53	1.98	5.51	3.77	2.36	1.69	N/A

<sup>(1)</sup> Actual performance, reported one quarter in arrears,

has been adjusted for anticipated losses experienced in the markets during the March 2020 quarter.

<sup>(2)</sup> A blended benchmark comprised of the weightings of each of the investments utilized within the fund of funds vehicle multiplied by their respective benchmarks as of April 2020.



## MUNICIPAL EMPLOYEES RETIREMENT FUND

Net of All Fees and Expenses

Periods Ending April 30, 2020

Funds	Percent	Compound, annualized returns														
		Benchmark	Holdings	Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
<b>Municipal Employees' Retirement Fund</b>	<b>100.0%</b>						\$2,541.3	5.28	-9.04	-4.15	-9.26	-2.80	3.26	4.25	4.99	5.93
Policy Benchmark							4.87	-8.09	-3.12	-8.30	-0.67	3.89	4.25	5.07	6.30	
Dynamic Benchmark							5.40	-7.96	-2.86	-8.25	-0.89	3.88	4.26	4.84	N/A	
<b>Domestic Equity</b>	<b>21.7%</b>	<b>20.0</b>	15.0	25.0			<b>\$552.1</b>	<b>13.00</b>	<b>-10.16</b>	<b>-0.79</b>	<b>-10.07</b>	<b>-0.95</b>	<b>8.02</b>	<b>8.34</b>	<b>10.71</b>	<b>11.11</b>
Russell 3000							13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	11.29	
<b>Developed Markets ISF</b>	<b>11.6%</b>	<b>11.0</b>	6.0	16.0			<b>\$294.8</b>	<b>7.21</b>	<b>-15.45</b>	<b>-12.00</b>	<b>-17.52</b>	<b>-11.59</b>	<b>-0.99</b>	<b>1.21</b>	<b>3.72</b>	<b>5.00</b>
MSCI EAFE IMI Net							7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	3.91	4.96	
<b>Emerging Markets ISF</b>	<b>9.8%</b>	<b>9.0</b>	4.0	14.0			<b>\$248.2</b>	<b>8.72</b>	<b>-12.21</b>	<b>-9.31</b>	<b>-16.07</b>	<b>-8.65</b>	<b>0.49</b>	<b>0.91</b>	<b>0.73</b>	<b>1.82</b>
MSCI Emerging Markets IMI							9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	0.44	1.26	
<b>Core Fixed Income</b>	<b>16.6%</b>	<b>16.0</b>	11.0	21.0			<b>\$422.4</b>	<b>2.16</b>	<b>2.41</b>	<b>6.83</b>	<b>4.32</b>	<b>9.78</b>	<b>4.38</b>	<b>3.38</b>	<b>2.90</b>	<b>3.81</b>
Barclays U.S. Aggregate Bond Index							1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96	
<b>Emerging Market Debt</b>	<b>5.5%</b>	<b>5.0</b>	0.0	10.0			<b>\$140.3</b>	<b>3.04</b>	<b>-15.56</b>	<b>-13.39</b>	<b>-15.57</b>	<b>-9.33</b>	<b>-1.71</b>	<b>1.14</b>	<b>-0.32</b>	<b>2.80</b>
50% JPM EMBI Global Div / 50% JPM GBI EM Global Div							3.08	-11.74	-8.19	-11.63	-3.77	0.45	1.76	0.15	3.62	
<b>High Yield</b>	<b>6.1%</b>	<b>6.0</b>	1.0	11.0			<b>\$154.8</b>	<b>3.72</b>	<b>-9.83</b>	<b>-6.38</b>	<b>-9.29</b>	<b>-5.65</b>	<b>0.91</b>	<b>2.47</b>	<b>2.91</b>	<b>5.15</b>
Bloomberg Barclays U.S. High Yield 2% Issuer Cap Index							4.53	-9.38	-5.95	-9.39	-5.03	1.47	2.96	3.26	5.51	
<b>Inflation Linked Bonds</b>	<b>5.3%</b>	<b>5.0</b>	0.0	10.0			<b>\$134.1</b>	<b>3.74</b>	<b>-2.24</b>	<b>1.88</b>	<b>-0.56</b>	<b>4.20</b>	<b>2.86</b>	<b>1.73</b>	<b>0.66</b>	<b>2.85</b>
Barclays World Gov't Inflation Linked Bond Index							3.68	-1.07	3.00	1.19	5.64	3.11	2.29	0.91	2.99	
<b>Liquidity Fund</b>	<b>2.2%</b>	<b>1.0</b>	0.0	3.0			<b>\$56.5</b>	<b>0.08</b>	<b>0.31</b>	<b>1.55</b>	<b>0.47</b>	<b>1.98</b>	<b>1.98</b>	<b>1.39</b>	<b>0.83</b>	<b>0.82</b>
50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index							0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84	
<b>Real Estate<sup>(1)</sup></b>	<b>6.4%</b>	<b>10.0</b>	5.0	15.0			<b>\$163.5</b>	N/A	<b>-5.86</b>	<b>-2.91</b>	<b>-5.21</b>	<b>-1.97</b>	<b>4.38</b>	<b>6.84</b>	<b>8.05</b>	<b>8.32</b>
ODCE Index 1Q in Arrears <sup>^</sup>							N/A	-6.11	-3.94	-6.11	-2.57	3.60	6.35	7.77	9.21	
<b>Private Investment<sup>(1)</sup></b>	<b>6.8%</b>	<b>10.0</b>	5.0	15.0			<b>\$171.7</b>	N/A	<b>-16.47</b>	<b>-11.19</b>	<b>-16.45</b>	<b>-6.90</b>	<b>6.86</b>	<b>8.96</b>	<b>10.06</b>	<b>10.65</b>
Russell 3000 + 250 basis points 1Q in Arrears <sup>^</sup>							N/A	-16.69	-11.30	-16.69	1.54	4.82	6.57	9.36	10.38	
<b>Alternative Investment Fund</b>	<b>8.0%</b>	<b>7.0</b>	2.0	12.0			<b>\$202.9</b>	<b>0.43</b>	<b>-9.33</b>	<b>-6.52</b>	<b>-9.05</b>	<b>-5.81</b>	<b>0.77</b>	<b>0.92</b>	<b>2.30</b>	N/A
Absolute Return Strategy blended benchmark <sup>(2)</sup>							0.67	1.60	4.53	1.98	5.51	3.77	2.36	1.69	N/A	

<sup>(1)</sup> Actual performance, reported one quarter in arrears,

has been adjusted for anticipated losses experienced in the markets during the March 2020 quarter.

<sup>(2)</sup> A blended benchmark comprised of the weightings of each of the investments utilized within the fund of funds vehicle multiplied by their respective benchmarks as of April 2020.



**OPEB FUND**  
**Net of All Fees and Expenses**  
**Periods Ending April 30, 2020**

Funds	Percent Holdings	Compound, annualized returns												
		Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
<b>OPEB</b>	<b>100.0%</b>				\$1,306.3	5.32	-9.05	-4.06	-9.27	-2.53	3.27	4.24	4.92	N/A
Policy Benchmark					4.87	-8.09	-3.12	-8.30	-0.67	3.88	4.27	5.27	N/A	
Dynamic Benchmark					5.43	-7.98	-2.83	-8.25	-0.20	4.06	4.45	N/A	N/A	
<b>Domestic Equity</b>	<b>21.3%</b>	<b>20.0</b>	15.0	25.0	\$278.3	13.00	-10.16	-0.79	-10.07	-0.95	8.03	8.34	10.71	N/A
<i>Russell 3000</i>					13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	N/A	
<b>Developed Markets ISF</b>	<b>11.4%</b>	<b>11.0</b>	6.0	15.0	\$148.5	7.21	-15.45	-12.00	-17.52	-11.59	-0.99	1.20	3.71	N/A
<i>MSCI EAFE IMI Net</i>					7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	3.91	N/A	
<b>Emerging Markets ISF</b>	<b>9.6%</b>	<b>9.0</b>	4.0	14.0	\$125.5	8.72	-12.21	-9.31	-16.07	-8.65	0.49	0.90	0.71	N/A
<i>MSCI Emerging Markets IMI</i>					9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	0.44	N/A	
<b>Core Fixed Income</b>	<b>16.3%</b>	<b>16.0</b>	11.0	21.0	\$213.1	2.16	2.41	6.83	4.32	9.78	4.38	3.39	2.88	N/A
<i>Barclays U.S. Aggregate Bond Index</i>					1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	N/A	
<b>Emerging Market Debt</b>	<b>5.4%</b>	<b>5.0</b>	0.0	10.0	\$70.5	3.04	-15.56	-13.39	-15.57	-9.33	-1.70	1.15	-0.31	N/A
<i>50% JPM EMBI Global Div / 50% JPM GBI EM Global Div</i>					3.08	-11.74	-8.19	-11.63	-3.77	0.45	1.76	0.15	N/A	
<b>High Yield</b>	<b>5.9%</b>	<b>6.0</b>	1.0	11.0	\$77.1	3.72	-9.83	-6.38	-9.29	-5.65	0.90	2.47	2.89	N/A
<i>Bloomberg Barclays U.S. High Yield 2% Issuer Cap Index</i>					4.53	-9.38	-5.95	-9.39	-5.03	1.47	2.96	3.26	N/A	
<b>Inflation Linked Bonds</b>	<b>5.5%</b>	<b>5.0</b>	0.0	10.0	\$71.4	3.74	-2.24	1.88	-0.56	4.20	2.85	1.73	0.62	N/A
<i>Barclays World Gov't Inflation Linked Bond Index</i>					3.68	-1.07	3.00	1.19	5.64	3.11	2.29	0.91	N/A	
<b>Liquidity Fund</b>	<b>3.7%</b>	<b>1.0</b>	0.0	3.0	\$47.9	0.08	0.32	1.56	0.47	1.98	2.05	1.45	0.87	N/A
<i>50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index</i>					0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	N/A	
<b>Real Estate<sup>(1)</sup></b>	<b>6.4%</b>	<b>10.0</b>	5.0	15.0	\$83.8	N/A	-5.86	-2.91	-5.21	-1.97	4.38	6.84	N/A	N/A
<i>ODCE Index 1Q in Arrears<sup>^</sup></i>					N/A	-6.11	-3.94	-6.11	-2.57	3.60	6.35	N/A	N/A	
<b>Private Investment<sup>(1)</sup></b>	<b>6.6%</b>	<b>10.0</b>	5.0	15.0	\$86.9	N/A	-16.47	-11.19	-16.45	-6.90	6.87	8.97	N/A	N/A
<i>Russell 3000 + 250 basis points 1Q in Arrears<sup>^</sup></i>					N/A	-16.69	-11.30	-16.69	1.54	4.82	6.57	N/A	N/A	
<b>Alternative Investment Fund</b>	<b>7.9%</b>	<b>7.0</b>	2.0	12.0	\$103.4	0.43	-9.33	-6.52	-9.05	-5.81	0.77	0.92	N/A	N/A
<i>Absolute Return Strategy blended benchmark<sup>(2)</sup></i>					0.67	1.60	4.53	1.98	5.51	3.77	2.36	N/A	N/A	

<sup>(1)</sup> Actual performance, reported one quarter in arrears,  
 has been adjusted for anticipated losses experienced in the markets during the March 2020 quarter.

<sup>(2)</sup> A blended benchmark comprised of the weightings of each of the investments utilized within the fund of funds vehicle multiplied by their respective benchmarks as of April 2020.



## PROBATE JUDGES EMPLOYEES' RETIREMENT FUND

Net of All Fees and Expenses

Periods Ending April 30, 2020

Funds			Percent Holdings	Compound, annualized returns												
				Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
<b>Probate Judges Employees' Retirement Fund</b>			100.0%				\$104.2	5.24	-9.10	-4.12	-9.32	-2.96	3.17	4.22	5.00	5.98
<i>Policy Benchmark</i>								4.87	-8.09	-3.12	-8.30	-0.67	3.92	4.30	5.16	6.35
<i>Dynamic Benchmark</i>								5.36	-8.01	-2.85	-8.29	-0.70	3.95	4.34	4.98	N/A
<b>Domestic Equity</b>			21.6%	20.0	15.0	25.0	\$22.5	13.00	-10.16	-0.79	-10.07	-0.95	8.02	8.35	10.71	11.11
<i>Russell 3000</i>								13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	11.29
<b>Developed Markets ISF</b>			11.5%	11.0	6.0	16.0	\$12.0	7.21	-15.45	-12.00	-17.52	-11.59	-1.00	1.21	3.72	5.00
<i>MSCI EAFE IMI</i>								7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	3.91	4.96
<b>Emerging Markets ISF</b>			9.8%	9.0	4.0	14.0	\$10.2	8.72	-12.21	-9.31	-16.07	-8.65	0.49	0.91	0.72	1.82
<i>MSCI Emerging Markets IMI</i>								9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	0.44	1.26
<b>Core Fixed Income</b>			16.4%	16.0	11.0	21.0	\$17.1	2.16	2.41	6.83	4.32	9.78	4.38	3.38	2.90	3.81
<i>Barclays U.S. Aggregate Bond Index</i>								1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96
<b>Emerging Market Debt</b>			5.5%	5.0	0.0	10.0	\$5.7	3.04	-15.56	-13.39	-15.57	-9.33	-1.71	1.14	-0.31	2.80
<i>50% JPM EMBI Global Div / 50% JPM GBI EM Global Div</i>								3.08	-11.74	-8.19	-11.63	-3.77	0.45	1.76	0.15	3.62
<b>High Yield</b>			6.0%	6.0	1.0	11.0	\$6.3	3.72	-9.83	-6.38	-9.29	-5.65	0.91	2.47	2.91	5.15
<i>Bloomberg Barclays U.S. High Yield 2% Issuer Cap Index</i>								4.53	-9.38	-5.95	-9.39	-5.03	1.47	2.96	3.26	5.51
<b>Inflation Linked Bonds</b>			5.3%	5.0	0.0	10.0	\$5.5	3.74	-2.24	1.88	-0.56	4.20	2.86	1.73	0.66	2.85
<i>Barclays World Gov't Inflation Linked Bond Index</i>								3.68	-1.07	3.00	1.19	5.64	3.11	2.29	0.91	2.99
<b>Liquidity Fund</b>			2.6%	1.0	0.0	3.0	\$2.7	0.08	0.31	1.55	0.47	1.98	1.97	1.39	0.83	0.82
<i>50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index</i>								0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84
<b>Real Estate<sup>(1)</sup></b>			6.5%	10.0	5.0	15.0	\$6.7	N/A	-5.86	-2.91	-5.21	-1.97	4.38	6.84	8.05	8.32
<i>ODCE Index 1Q in Arrears<sup>^</sup></i>								N/A	-6.11	-3.94	-6.11	-2.57	3.60	6.35	7.77	9.21
<b>Private Investment<sup>(1)</sup></b>			6.7%	10.0	5.0	15.0	\$7.0	N/A	-16.47	-11.19	-16.45	-6.90	6.86	8.97	10.06	10.65
<i>Russell 3000 + 250 basis points 1Q in Arrears<sup>^</sup></i>								N/A	-16.69	-11.30	-16.69	1.54	4.82	6.57	9.36	10.38
<b>Alternative Investment Fund</b>			8.1%	7.0	2.0	12.0	\$8.5	0.43	-9.33	-6.52	-9.05	-5.81	0.77	0.92	2.30	N/A
<i>Absolute Return Strategy blended benchmark<sup>(2)</sup></i>								0.67	1.60	4.53	1.98	5.51	3.77	2.36	1.69	N/A

<sup>(1)</sup> Actual performance, reported one quarter in arrears,

has been adjusted for anticipated losses experienced in the markets during the March 2020 quarter.

<sup>(2)</sup> A blended benchmark comprised of the weightings of each of the investments utilized within the fund of funds vehicle multiplied by their respective benchmarks as of April 2020.

**STATE JUDGES RETIREMENT FUND**

Net of All Fees and Expenses

Periods Ending April 30, 2020

Funds	Percent Holdings	Compound, annualized returns												
		Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
<b>Benchmark</b>														
<b>State Judges Retirement Fund</b>	100.0%													
Policy Benchmark					\$224.1	5.30	-9.09	-4.07	-9.32	-2.82	3.28	4.26	5.03	6.09
Dynamic Benchmark						4.87	-8.09	-3.12	-8.30	-0.67	3.89	4.25	5.07	6.30
						5.42	-8.00	-2.81	-8.29	-0.53	4.03	4.35	4.94	N/A
<b>Domestic Equity</b>	21.7%	20.0	15.0	25.0	\$48.6	13.00	-10.16	-0.79	-10.07	-0.95	8.02	8.34	10.71	11.11
<i>Russell 3000</i>						13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	11.29
<b>Developed Markets ISF</b>	11.6%	11.0	6.0	16.0	\$26.0	7.21	-15.45	-12.00	-17.52	-11.59	-0.99	1.21	3.72	5.01
<i>MSCI EAFE IMI Net</i>						7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	3.91	4.96
<b>Emerging Markets ISF</b>	9.8%	9.0	4.0	14.0	\$22.0	8.72	-12.21	-9.31	-16.07	-8.65	0.49	0.91	0.72	1.82
<i>MSCI Emerging Markets IMI</i>						9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	0.44	1.26
<b>Core Fixed Income</b>	16.6%	16.0	11.0	21.0	\$37.2	2.16	2.41	6.83	4.32	9.78	4.38	3.38	2.90	3.81
<i>Barclays U.S. Aggregate Bond Index</i>						1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96
<b>Emerging Market Debt</b>	5.6%	5.0	0.0	10.0	\$12.6	3.04	-15.56	-13.39	-15.57	-9.33	-1.71	1.14	-0.31	2.80
<i>50% JPM EMBI Global Div / 50% JPM GBI EM Global Div</i>						3.08	-11.74	-8.19	-11.63	-3.77	0.45	1.76	0.15	3.62
<b>High Yield</b>	6.1%	6.0	1.0	11.0	\$13.6	3.72	-9.83	-6.38	-9.29	-5.65	0.91	2.47	2.91	5.15
<i>Bloomberg Barclays U.S. High Yield 2% Issuer Cap Index</i>						4.53	-9.38	-5.95	-9.39	-5.03	1.47	2.96	3.26	5.51
<b>Inflation Linked Bonds</b>	5.4%	5.0	0.0	10.0	\$12.1	3.74	-2.24	1.88	-0.56	4.20	2.86	1.73	0.66	2.85
<i>Barclays World Gov't Inflation Linked Bond Index</i>						3.68	-1.07	3.00	1.19	5.64	3.11	2.29	0.91	2.99
<b>Liquidity Fund</b>	1.8%	1.0	0.0	3.0	\$4.1	0.08	0.31	1.55	0.47	1.98	1.98	1.39	0.83	0.78
<i>50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index</i>						0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84
<b>Real Estate<sup>(1)</sup></b>	6.4%	10.0	5.0	15.0	\$14.4	N/A	-5.86	-2.91	-5.21	-1.97	4.38	6.84	8.05	8.33
<i>ODCE Index 1Q in Arrears<sup>^</sup></i>						N/A	-6.11	-3.94	-6.11	-2.57	3.60	6.35	7.77	9.21
<b>Private Investment<sup>(1)</sup></b>	6.8%	10.0	5.0	15.0	\$15.2	N/A	-16.47	-11.19	-16.45	-6.90	6.86	8.97	10.06	10.65
<i>Russell 3000 + 250 basis points 1Q in Arrears<sup>^</sup></i>						N/A	-16.69	-11.30	-16.69	1.54	4.82	6.57	9.36	10.38
<b>Alternative Investment Fund</b>	8.1%	7.0	2.0	12.0	\$18.2	0.43	-9.33	-6.52	-9.05	-5.81	0.77	0.92	2.30	N/A
<i>Absolute Return Strategy blended benchmark<sup>(2)</sup></i>						0.67	1.60	4.53	1.98	5.51	3.77	2.36	1.69	N/A

<sup>(1)</sup> Actual performance, reported one quarter in arrears,

has been adjusted for anticipated losses experienced in the markets during the March 2020 quarter.

<sup>(2)</sup> A blended benchmark comprised of the weightings of each of the investments utilized within the fund of funds vehicle multiplied by their respective benchmarks as of April 2020.



## STATE'S ATTORNEYS' RETIREMENT FUND

Net of All Fees and Expenses

Periods Ending April 30, 2020

Funds	Percent Holdings	Compound, annualized returns												
		Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
<b>Funds</b>														
<b>Benchmark</b>														
<b>State's Attorneys' Retirement Fund</b>	<b>100.0%</b>													
Policy Benchmark					\$2.0	5.28	-9.08	-4.09	-9.30	-4.01	2.91	3.77	4.72	5.33
Dynamic Benchmark						4.87	-8.09	-3.12	-8.30	-0.67	4.37	4.39	5.42	N/A
						5.40	-7.98	-2.81	-8.27	-1.59	4.21	4.28	4.75	N/A
<b>Domestic Equity</b>	<b>21.5%</b>	<b>20.0</b>	15.0	25.0	<b>\$0.4</b>	<b>13.00</b>	<b>-10.16</b>	<b>-0.79</b>	<b>-10.07</b>	<b>-0.95</b>	<b>8.03</b>	<b>8.35</b>	<b>10.71</b>	<b>11.11</b>
<i>Russell 3000</i>						13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	11.29
<b>Developed Markets ISF</b>	<b>11.5%</b>	<b>11.0</b>	6.0	16.0	<b>\$0.2</b>	<b>7.21</b>	<b>-15.45</b>	<b>-12.00</b>	<b>-17.52</b>	<b>-11.59</b>	<b>-0.99</b>	<b>1.21</b>	<b>N/A</b>	<b>N/A</b>
<i>MSCI EAFE IMI Net</i>						7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	N/A	N/A
<b>Emerging Markets ISF</b>	<b>9.7%</b>	<b>9.0</b>	4.0	14.0	<b>\$0.2</b>	<b>8.72</b>	<b>-12.21</b>	<b>-9.31</b>	<b>-16.07</b>	<b>-8.65</b>	<b>0.49</b>	<b>0.91</b>	<b>N/A</b>	<b>N/A</b>
<i>MSCI Emerging Markets IMI</i>						9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	N/A	N/A
<b>Core Fixed Income</b>	<b>16.5%</b>	<b>16.0</b>	11.0	21.0	<b>\$0.3</b>	<b>2.16</b>	<b>2.41</b>	<b>6.83</b>	<b>4.32</b>	<b>9.78</b>	<b>4.38</b>	<b>3.38</b>	<b>2.95</b>	<b>3.84</b>
<i>Barclays U.S. Aggregate Bond Index</i>						1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96
<b>Emerging Market Debt</b>	<b>5.6%</b>	<b>5.0</b>	0.0	10.0	<b>\$0.1</b>	<b>3.04</b>	<b>-15.56</b>	<b>-13.39</b>	<b>-15.57</b>	<b>-9.33</b>	<b>-1.71</b>	<b>1.14</b>	<b>-0.32</b>	<b>2.79</b>
<i>50% JPM EMBI Global Div / 50% JPM GBI EM Global Div</i>						3.08	-11.74	-8.19	-11.63	-3.77	0.45	1.76	0.15	3.62
<b>High Yield</b>	<b>6.0%</b>	<b>6.0</b>	1.0	11.0	<b>\$0.1</b>	<b>3.72</b>	<b>-9.83</b>	<b>-6.38</b>	<b>-9.29</b>	<b>-5.65</b>	<b>0.91</b>	<b>2.47</b>	<b>2.89</b>	<b>5.13</b>
<i>Bloomberg Barclays U.S. High Yield 2% Issuer Cap Index</i>						4.53	-9.38	-5.95	-9.39	-5.03	1.47	2.96	3.26	5.51
<b>Inflation Linked Bonds</b>	<b>5.4%</b>	<b>5.0</b>	0.0	10.0	<b>\$0.1</b>	<b>3.74</b>	<b>-2.24</b>	<b>1.88</b>	<b>-0.56</b>	<b>4.20</b>	<b>2.85</b>	<b>1.73</b>	<b>0.65</b>	<b>2.85</b>
<i>Barclays World Gov't Inflation Linked Bond Index</i>						3.68	-1.07	3.00	1.19	5.64	3.11	2.29	0.91	2.99
<b>Liquidity Fund</b>	<b>2.4%</b>	<b>1.0</b>	0.0	3.0	<b>\$0.0</b>	<b>0.08</b>	<b>0.31</b>	<b>1.55</b>	<b>0.47</b>	<b>1.98</b>	<b>1.99</b>	<b>1.40</b>	<b>0.83</b>	<b>0.83</b>
<i>50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index</i>						0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84
<b>Real Estate<sup>(1)</sup></b>	<b>6.4%</b>	<b>10.0</b>	5.0	15.0	<b>\$0.1</b>	<b>N/A</b>	<b>-5.86</b>	<b>-2.91</b>	<b>-5.21</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
<i>ODCE Index 1Q in Arrears<sup>^</sup></i>						N/A	-6.11	-3.94	-6.11	N/A	N/A	N/A	N/A	N/A
<b>Private Investment<sup>(1)</sup></b>	<b>6.7%</b>	<b>10.0</b>	5.0	15.0	<b>\$0.1</b>	<b>N/A</b>	<b>-16.47</b>	<b>-11.19</b>	<b>-16.45</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
<i>Russell 3000 + 250 basis points 1Q in Arrears<sup>^</sup></i>						N/A	-16.69	-11.30	-16.69	N/A	N/A	N/A	N/A	N/A
<b>Alternative Investment Fund</b>	<b>8.1%</b>	<b>7.0</b>	2.0	12.0	<b>\$0.2</b>	<b>0.43</b>	<b>-9.33</b>	<b>-6.52</b>	<b>-9.05</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
<i>Absolute Return Strategy blended benchmark<sup>(2)</sup></i>						0.67	1.60	4.53	1.98	N/A	N/A	N/A	N/A	N/A

<sup>(1)</sup> Actual performance, reported one quarter in arrears,

has been adjusted for anticipated losses experienced in the markets during the March 2020 quarter.

<sup>(2)</sup> A blended benchmark comprised of the weightings of each of the investments utilized within the fund of funds vehicle multiplied by their respective benchmarks as of April 2020.



## AGRICULTURAL COLLEGE FUND

Net of All Fees and Expenses

Periods Ending April 30, 2020

Funds		Percent Holdings	Compound, annualized returns												
			Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
Agricultural College Fund	Benchmark	100.0%				\$0.7	2.16	2.41	6.89	4.31	9.87	4.42	3.42	2.91	4.07
	Policy Benchmark					1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	4.12	
	Dynamic Benchmark					1.78	3.00	7.56	4.98	10.84	5.17	3.80	N/A	N/A	
Core Fixed Income	Barclays U.S. Aggregate Bond Index	99.6%	100.0	100.0	100.0	\$0.7	2.16	2.41	6.83	4.32	9.78	4.38	3.38	2.90	3.80
						1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96	
Liquidity Fund <sup>(1)</sup>	50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index	0.4%				\$0.0	0.07	0.30	1.80	0.45	2.03	1.64	1.12	0.60	0.67
						0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84	

<sup>(1)</sup> Operational cash balance



## ANDREW C. CLARK FUND

Net of All Fees and Expenses

Periods Ending April 30, 2020

Funds	Percent Holdings	Compound, annualized returns												
		Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
Andrew C. Clark Fund	100.0%				\$1.3	4.27	-2.13	2.92	-1.33	4.66	4.39	3.97	4.20	5.39
Policy Benchmark					4.33	-1.71	3.58	-0.87	5.76	5.06	4.20	4.49	5.45	
Dynamic Benchmark					4.03	-1.86	3.44	-1.03	5.29	5.06	4.20	N/A	N/A	
Domestic Equity	14.4%	15.0	10.0	20.0	\$0.2	13.00	-10.16	-0.79	-10.07	-0.95	8.03	8.35	10.71	11.10
Russell 3000					13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	11.29	
Developed Markets ISF	9.5%	11.0	6.0	16.0	\$0.1	7.21	-15.45	-12.00	-17.52	-11.59	-0.99	1.21	3.72	N/A
MSCI EAFE IMI Net					7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	3.91	N/A	
Emerging Markets ISF	3.5%	4.0	0.0	5.0	\$0.0	8.72	-12.21	-9.31	-16.07	-8.65	0.49	0.91	0.72	N/A
MSCI Emerging Markets IMI					9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	0.44	N/A	
Core Fixed Income	71.3%	67.0	57.0	77.0	\$0.9	2.16	2.41	6.83	4.32	9.78	4.38	3.38	2.90	3.80
Barclays U.S. Aggregate Bond Index					1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96	
Liquidity Fund	1.3%	3.0	0.0	4.0	\$0.0	0.08	0.31	6.10	0.47	6.56	4.70	3.05	2.04	1.70
50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index					0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84	



## SOLDIERS' SAILORS' & MARINES' FUND

Net of All Fees and Expenses

Periods Ending April 30, 2020

Funds		Percent Holdings	Compound, annualized returns												
			Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
<b>Soldiers' Sailors' &amp; Marines Fund</b>		100.0%				\$79.9	4.25	-2.10	2.90	-1.31	4.74	4.39	3.97	4.21	5.34
	<i>Policy Benchmark</i>					4.33	-1.71	3.58	-0.87	5.76	5.06	4.20	4.49	5.34	
	<i>Dynamic Benchmark</i>					4.02	-1.83	3.42	-1.01	5.38	5.07	4.22	N/A	N/A	
<b>Domestic Equity</b>		14.3%	15.0	10.0	20.0	\$11.4	13.00	-10.16	-0.79	-10.07	-0.95	8.03	8.35	10.71	11.12
	<i>Russell 3000</i>					13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	11.29	
<b>Developed Markets ISF</b>		9.5%	11.0	6.0	16.0	\$7.6	7.21	-15.45	-12.00	-17.52	-11.59	-0.99	1.21	3.72	N/A
	<i>MSCI EAFE IMI Net</i>					7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	3.91	N/A	
<b>Emerging Markets ISF</b>		3.6%	4.0	0.0	5.0	\$2.8	8.72	-12.21	-9.31	-16.07	-8.65	0.49	0.91	0.72	N/A
	<i>MSCI Emerging Markets IMI</i>					9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	0.44	N/A	
<b>Core Fixed Income</b>		70.9%	67.0	57.0	77.0	\$56.6	2.16	2.41	6.83	4.32	9.78	4.38	3.38	2.90	3.80
	<i>Barclays U.S. Aggregate Bond Index</i>					1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96	
<b>Liquidity Fund</b>		1.8%	3.0	0.0	4.0	\$1.4	0.08	0.31	1.55	0.47	1.98	1.98	1.40	0.84	0.83
	<i>50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index</i>					0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84	



**SCHOOL FUND**  
Net of All Fees and Expenses  
Periods Ending April 30, 2020

Funds		Percent Holdings	Compound, annualized returns												
			Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
<b>School Fund</b>		100.0%				\$12.1	4.26	-2.16	2.86	-1.39	4.70	4.38	3.98	4.23	5.33
Policy Benchmark						4.33	-1.71	3.58	-0.87	5.76	5.06	4.20	4.49	5.45	
Dynamic Benchmark						4.02	-1.89	3.36	-1.09	5.32	5.05	4.22	N/A	N/A	
<b>Domestic Equity</b>		14.1%	15.0	10.0	20.0	\$1.7	13.00	-10.16	-0.79	-10.07	-0.95	8.03	8.35	10.71	11.11
Russell 3000						13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	11.29	
<b>Developed Markets ISF</b>		9.5%	11.0	6.0	16.0	\$1.2	7.21	-15.45	-12.00	-17.52	-11.59	-0.99	1.21	3.72	N/A
MSCI EAFE IMI Net						7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	3.91	N/A	
<b>Emerging Markets ISF</b>		3.6%	4.0	0.0	5.0	\$0.4	8.72	-12.21	-9.31	-16.07	-8.65	0.49	0.91	0.72	N/A
MSCI Emerging Markets IMI						9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	0.44	N/A	
<b>Core Fixed Income</b>		71.8%	67.0	57.0	77.0	\$8.7	2.16	2.41	6.83	4.32	9.78	4.38	3.38	2.90	3.80
Barclays U.S. Aggregate Bond Index						1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96	
<b>Liquidity Fund</b>		0.9%	3.0	0.0	4.0	\$0.1	0.16	0.63	2.55	0.94	3.25	3.33	1.78	1.35	1.18
50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index						0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84	

**IDA EATON COTTON FUND**

Net of All Fees and Expenses

Periods Ending April 30, 2020

Funds		Percent Holdings	Compound, annualized returns												
			Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
IDA Eaton Cotton Fund		100.0%				\$2.7	4.26	-2.14	2.91	-1.35	4.65	4.39	3.96	4.20	5.39
Policy Benchmark						4.33	-1.71	3.58	-0.87	5.76	5.06	4.20	4.49	5.45	
Dynamic Benchmark						4.03	-1.87	3.42	-1.05	5.27	5.06	4.20	N/A	N/A	
Domestic Equity		14.4%	15.0	10.0	20.0	\$0.4	13.00	-10.16	-0.79	-10.07	-0.95	8.03	8.35	10.71	11.11
Russell 3000						13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	11.29	
Developed Markets ISF		9.5%	11.0	6.0	16.0	\$0.3	7.21	-15.45	-12.00	-17.52	-11.59	-0.99	1.21	3.72	N/A
MSCI EAFE IMI Net						7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	3.91	N/A	
Emerging Markets ISF		3.5%	4.0	0.0	5.0	\$0.1	8.72	-12.21	-9.31	-16.07	-8.65	0.49	0.91	0.72	N/A
MSCI Emerging Markets IMI						9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	0.44	N/A	
Core Fixed Income		70.8%	67.0	57.0	77.0	\$1.9	2.16	2.41	6.83	4.32	9.78	4.38	3.38	2.90	3.80
Barclays U.S. Aggregate Bond Index						1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96	
Liquidity Fund		1.8%	3.0	0.0	4.0	\$0.0	0.08	0.31	6.09	0.47	6.54	5.06	3.24	2.17	1.76
50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index						0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84	



**HOPEMEAD FUND**  
Net of All Fees and Expenses  
Periods Ending April 30, 2020

Funds		Percent Holdings	Compound, annualized returns												
			Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
<b>Hopemead Fund</b>		100.0%				\$4.3	4.27	-2.18	2.86	-1.40	4.59	4.35	3.94	4.17	5.17
Policy Benchmark							4.33	-1.71	3.58	-0.87	5.76	5.06	4.20	4.49	5.45
Dynamic Benchmark							4.04	-1.90	3.38	-1.10	5.22	5.02	4.18	N/A	N/A
<b>Domestic Equity</b>		14.7%	15.0	10.0	20.0	\$0.6	13.00	-10.16	-0.79	-10.07	-0.95	8.03	8.35	10.71	11.10
Russell 3000							13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	11.29
<b>Developed Markets ISF</b>		9.4%	11.0	6.0	16.0	\$0.4	7.21	-15.45	-12.00	-17.52	-11.59	-0.99	1.21	3.72	N/A
MSCI EAFE IMI Net							7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	3.91	N/A
<b>Emerging Markets ISF</b>		3.6%	4.0	0.0	5.0	\$0.2	8.72	-12.21	-9.31	-16.07	-8.65	0.49	0.91	0.72	N/A
MSCI Emerging Markets IMI							9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	0.44	N/A
<b>Core Fixed Income</b>		70.0%	67.0	57.0	77.0	\$3.0	2.16	2.41	6.83	4.32	9.78	4.38	3.38	2.90	3.80
Barclays U.S. Aggregate Bond Index							1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96
<b>Liquidity Fund</b>		2.4%	3.0	0.0	4.0	\$0.1	0.08	0.31	1.55	0.47	1.98	1.98	1.40	0.84	0.84
50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index							0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84

**ARTS ENDOWMENT FUND**

Net of All Fees and Expenses

Periods Ending April 30, 2020

Funds	Percent Holdings	Compound, annualized returns												
		Policy Weights	Lower Range	Upper Range	Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
<b>Benchmark</b>														
<b>Arts Endowment Fund</b>	100.0%				\$18.7	6.92	-8.87	-3.76	-9.26	-3.29	2.31	2.71	3.30	4.60
Policy Benchmark					6.99	-8.81	-3.34	-9.21	-2.23	3.02	2.98	3.62	4.95	
Dynamic Benchmark					7.05	-8.59	-3.20	-9.01	-2.86	N/A	N/A	N/A	N/A	
<b>Domestic Equity</b>	28.0%	28.0	23.0	33.0	\$5.2	13.00	-10.16	-0.79	-10.07	-0.95	8.04	8.35	10.73	N/A
<i>Russell 3000</i>					13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	N/A	
<b>Developed Markets ISF</b>	15.1%	17.0	12.0	22.0	\$2.8	7.21	-15.45	-12.00	-17.52	-11.59	-0.97	1.22	3.73	N/A
<i>MSCI EAFE IMI Net</i>					7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	3.91	N/A	
<b>Emerging Markets ISF</b>	11.7%	12.0	7.0	17.0	\$2.2	8.72	-12.21	-9.31	-16.07	-8.65	0.51	0.92	0.73	N/A
<i>MSCI Emerging Markets IMI</i>					9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	0.44	N/A	
<b>Core Fixed Income</b>	18.0%	16.0	11.0	21.0	\$3.4	2.16	2.41	6.83	4.32	9.78	4.38	3.38	2.90	3.80
<i>Barclays U.S. Aggregate Bond Index</i>					1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96	
<b>Emerging Market Debt</b>	7.4%	8.0	3.0	13.0	\$1.4	3.04	-15.56	-13.39	-15.57	-9.33	N/A	N/A	N/A	N/A
<i>50% JPM EMBI Global Div / 50% JPM GBI EM Global Div</i>					3.08	-11.74	-8.19	-11.63	-3.77	N/A	N/A	N/A	N/A	
<b>High Yield</b>	8.9%	9.0	4.0	14.0	\$1.7	3.72	-9.83	-6.38	-9.29	-5.65	N/A	N/A	N/A	N/A
<i>Bloomberg Barclays U.S. High Yield 2% Issuer Cap Index</i>					4.53	-9.38	-5.95	-9.39	-5.03	N/A	N/A	N/A	N/A	
<b>Inflation Linked Bonds</b>	9.8%	9.0	4.0	14.0	\$1.8	3.74	-2.24	1.88	-0.56	4.20	N/A	N/A	N/A	N/A
<i>Barclays World Gov't Inflation Linked Bond Index</i>					3.68	-1.07	3.00	1.19	5.64	N/A	N/A	N/A	N/A	
<b>Liquidity Fund</b>	1.1%	1.0	0.0	3.0	\$0.2	0.08	0.31	1.55	0.47	1.98	1.95	1.36	0.81	0.81
<i>50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index</i>					0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84	



## POLICEMEN AND FIREMEN SURVIVORS' BENEFIT FUND

Net of All Fees and Expenses

Periods Ending April 30, 2020

Funds			Percent Holdings	Policy Weights	Lower Range	Upper Range	Compound, annualized returns									
							Market Value (mil.)	Month	Three Months	Fiscal YTD	Calendar YTD	One Year	Three Year	Five Year	Seven Year	Ten Year
<b>Funds</b>																
<i>Benchmark</i>																
<b>Policemen and Firemen Survivors' Benefit Fund</b>			100.0%													
<i>Policy Benchmark</i>							\$35.3	5.29	-9.08	-4.07	-9.29	-3.03	3.32	4.33	5.31	6.31
<i>Dynamic Benchmark</i>								4.87	-8.09	-3.12	-8.30	-0.67	4.02	4.34	N/A	N/A
								5.40	-7.98	-2.79	-8.26	-0.74	4.08	4.39	N/A	N/A
<b>Domestic Equity</b>			21.6%	20.0	15.0	25.0	\$7.6	13.00	-10.16	-0.79	-10.07	-0.95	8.02	8.35	10.96	11.29
<i>Russell 3000</i>								13.24	-10.33	-1.14	-10.42	-1.04	8.02	8.33	10.66	11.29
<b>Developed Markets ISF</b>			11.6%	11.0	6.0	16.0	\$4.1	7.21	-15.45	-12.00	-17.52	-11.59	-0.99	1.21	N/A	N/A
<i>MSCI EAFE IMI Net</i>								7.00	-16.31	-10.99	-18.15	-10.91	0.20	1.16	N/A	N/A
<b>Emerging Markets ISF</b>			9.8%	9.0	4.0	14.0	\$3.4	8.72	-12.21	-9.31	-16.07	-8.65	0.49	0.91	N/A	N/A
<i>MSCI Emerging Markets IMI</i>								9.61	-13.15	-11.50	-17.14	-12.78	-0.18	-0.59	N/A	N/A
<b>Core Fixed Income</b>			16.5%	16.0	11.0	21.0	\$5.8	2.16	2.41	6.83	4.32	9.78	4.38	3.38	2.98	3.86
<i>Barclays U.S. Aggregate Bond Index</i>								1.78	3.00	7.56	4.98	10.84	5.17	3.80	3.30	3.96
<b>Emerging Market Debt</b>			5.5%	5.0	0.0	10.0	\$2.0	3.04	-15.56	-13.39	-15.57	-9.33	-1.71	1.14	-0.32	2.80
<i>50% JPM EMBI Global Div / 50% JPM GBI EM Global Div</i>								3.08	-11.74	-8.19	-11.63	-3.77	0.45	1.76	0.15	3.62
<b>High Yield</b>			6.0%	6.0	1.0	11.0	\$2.1	3.72	-9.83	-6.38	-9.29	-5.65	0.91	2.47	2.88	5.13
<i>Bloomberg Barclays U.S. High Yield 2% Issuer Cap Index</i>								4.53	-9.38	-5.95	-9.39	-5.03	1.47	2.96	3.26	5.51
<b>Inflation Linked Bonds</b>			5.6%	5.0	0.0	10.0	\$2.0	3.74	-2.24	1.88	-0.56	4.20	2.86	1.73	0.62	2.83
<i>Bloomberg Barclays U.S. High Yield 2% Issuer Cap Index</i>								N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Liquidity Fund</b>			2.2%	1.0	0.0	3.0	\$0.8	0.08	0.31	1.55	0.47	1.98	1.98	1.40	0.84	0.83
<i>50% U.S. 3-Month T-Bill / 50% Bloomberg Barclays US Government Treasury 1 to 3 Year Index</i>								0.07	1.23	2.40	1.37	2.81	2.14	1.46	1.09	0.84
<b>Real Estate<sup>(1)</sup></b>			6.4%	10.0	5.0	15.0	\$2.3	N/A	-5.86	-2.91	-5.21	-1.97	4.38	6.84	7.99	8.28
<i>ODCE Index 1Q in Arrears<sup>^</sup></i>								N/A	-6.11	-3.94	-6.11	-2.57	3.60	6.35	7.77	9.21
<b>Private Investment<sup>(1)</sup></b>			6.7%	10.0	5.0	15.0	\$2.4	N/A	-16.47	-11.19	-16.45	-6.90	6.86	8.97	N/A	N/A
<i>Russell 3000 + 250 basis points 1Q in Arrears<sup>^</sup></i>								N/A	-16.69	-11.30	-16.69	1.54	4.82	6.57	N/A	N/A
<b>Alternative Investment Fund</b>			8.1%	7.0	2.0	12.0	\$2.9	0.43	-9.33	-6.52	-9.05	-5.81	0.77	0.92	N/A	N/A
<i>Absolute Return Strategy blended benchmark<sup>(2)</sup></i>								0.67	1.60	4.53	1.98	5.51	3.77	2.36	N/A	N/A

<sup>(1)</sup> Actual performance, reported one quarter in arrears,

has been adjusted for anticipated losses experienced in the markets during the March 2020 quarter.

<sup>(2)</sup> A blended benchmark comprised of the weightings of each of the investments utilized within the fund of funds vehicle multiplied by their respective benchmarks as of April 2020.



INVESTMENT GROUP

# The State of Connecticut Retirement Plans and Trust Funds Alternative Investments Fund

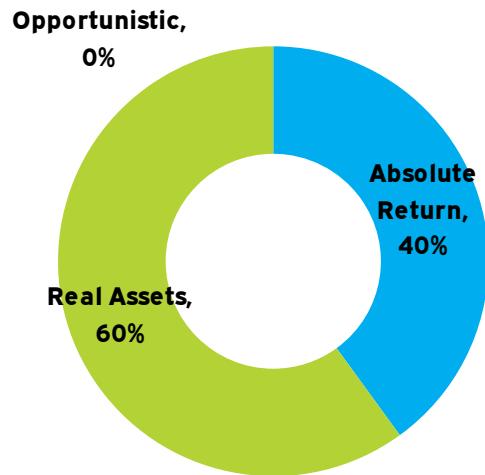
March 31, 2020

Quarterly Review

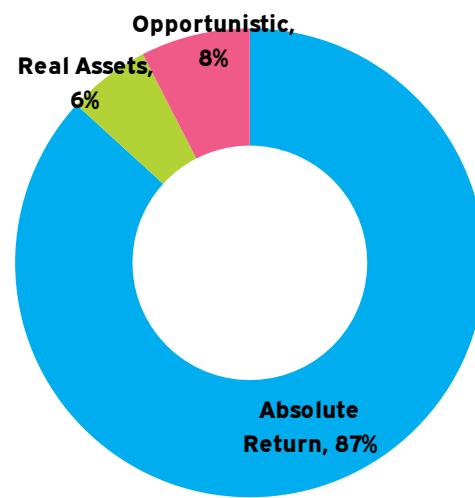
## Agenda

1. Executive Summary
2. AIF Absolute Return Strategies Portfolio
  - Absolute Return Strategies Summary
  - Absolute Return Strategies Full Report
3. AIF Connecticut Horizon Fund (CHF) Portfolio
4. AIF Opportunistic Portfolio
5. AIF Real Assets Portfolio
6. Appendices
  - AIF Opportunistic and Real Assets Portfolios Supporting Analysis and Notes
  - Corporate Update
  - Disclaimer, Glossary, and Notes

## **Executive Summary**

**AIF Portfolio Exposures<sup>1</sup>****Target AIF Allocations**

7.0% of total plan assets

**Current AIF Allocations**

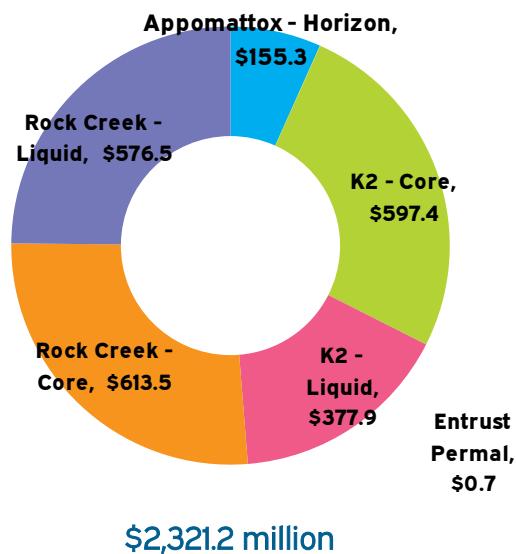
8.3% of total plan assets

- The AIF value decreased by \$273.8 million during the first quarter mainly due to the depreciation of the Absolute Return portfolio. In addition, AIF received \$2.0 million in distributions from the Real Assets program, and \$3.3 million from the Opportunistic program.

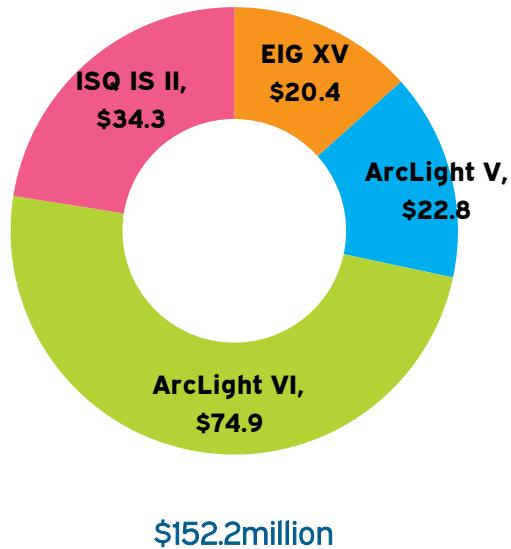
<sup>1</sup> As of March 31, 2020, except for Opportunistic and Real Assets, which are based on fair market values as of December 31, 2019.

#### AIF Asset Class Exposures

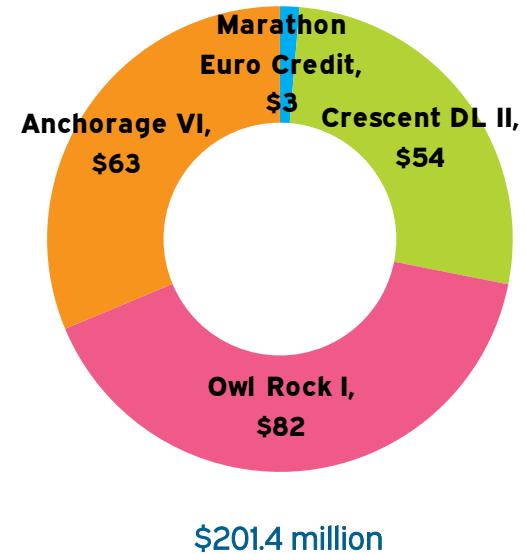
##### Absolute Return<sup>1</sup>



##### Real Assets<sup>2</sup>



##### Opportunistic/New Ideas<sup>2</sup>



- AIF Absolute Return decreased by \$296.9 million during the quarter
- AIF Real Assets increased by \$4.6 million during the quarter
- AIF Opportunistic/New Ideas increased by \$18.5 million during the quarter

<sup>1</sup> As of March 31, 2020.

<sup>2</sup> As of December 31, 2019.

AIF Investment Guideline Compliance  
 As of March 31, 2020

## Actual Allocation versus Policy Target

	Current Allocation (%)	Current Allocation Plus Unfunded (%)	Lower Target	Policy Target	Upper Target	Yes/No
CRPTF	8.3	9.1	2	7	12	Yes
Absolute Return Strategies	86.8	78.8	5	40	50	No*
Real Assets	5.7	13.0	5	60	75	Yes
Opportunistic Investments	7.5	8.2	0	0	20	Yes

\*Notes: The CRPTF allocations shown above represent the AIF allocation within the total CRPTF portfolio, and the various strategy allocations and target ranges are percentages of only the AIF portfolio.

## Portfolio Status – Compliance and Guidelines for CRPTF

Investment Category Target Allocation*	40% Absolute Return Strategies (+10%,-35%); 60% Real Assets (+15%, -55%); 0% Opportunistic (+20%)	No*
Liquidity Parameters (A)	Exposure to investments with lock-up provisions greater than one year but less than five years will be limited to 10% of the target allocation to AIF	Yes
Liquidity Parameters (B)	No liquid investment strategies are permitted in vehicles or structures that require a commitment of capital of more than 10 years	Yes
Manager Diversification	No more than 20% of the AIF's policy target allocation should be invested in any one investment vehicle	No**
Target Volatility	The AIF target volatility (standard deviation of monthly returns), should be between equity volatility and fixed income volatility over a market cycle	Yes**
Target Correlation	The correlation of the AIF portfolio to standard equity benchmarks is targeted to be less than 0.50 over a market cycle	Yes**

\*Notes: The CRPTF allocations shown above represent the AIF allocation within the total CRPTF portfolio, and the various strategy allocations and target ranges are percentages of only the AIF portfolio.

\*\*Notes: Currently not in compliance given the Real Assets Program's recent commitments GIP IV and IFM (\$200m each).

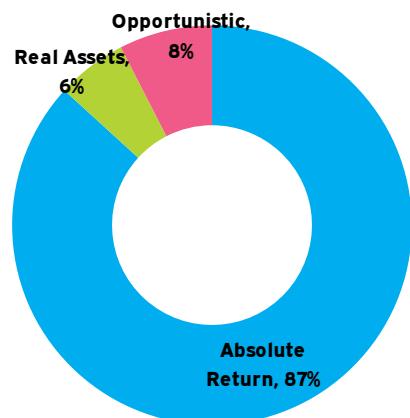
\*\*\*Notes: The AIF aggregate returns are utilizing custodial numbers.

## **AIF Absolute Return Strategies Portfolio**

## AIF Absolute Return Strategies Summary Report

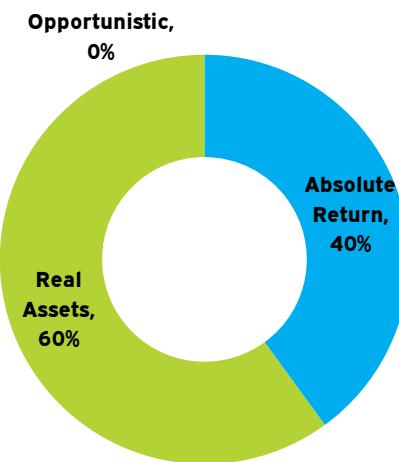
### Absolute Return Strategies Portfolio Summary

#### Current AIF Allocations<sup>1</sup>



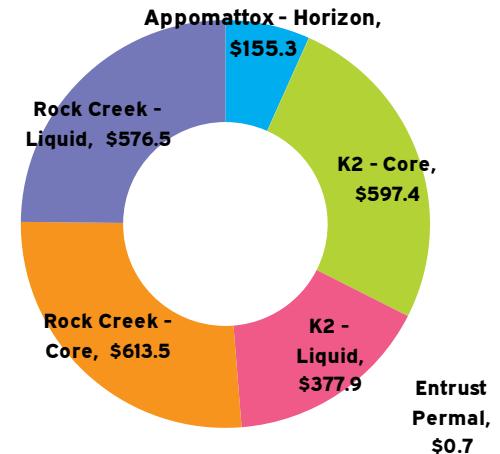
Absolute Return Allocation: 86.8%

#### Target AIF Allocations



Absolute Return Target: 40.0%

#### Absolute Return



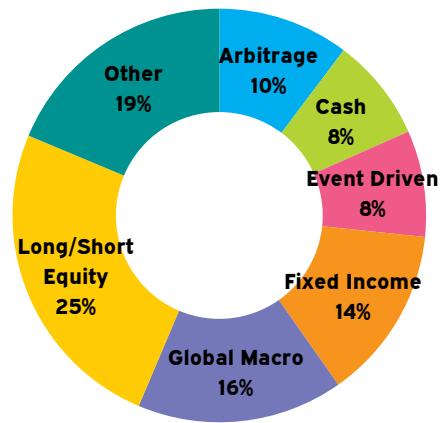
NAV: \$2,321.2 million

- Absolute Return still remains significantly over the target AIF Allocation of 40% (+10%, -35%), due to the shift in the strategic asset allocation, which shifted Absolute Return's target from 60% of AIF to 40% of AIF.
- The Absolute Return Portfolio decreased by \$296.9 million over the quarter. Rock Creek decreased by \$193.0 million, K2 decreased by \$80.3 million, Appomattox decreased by \$23.5 million, and Entrust decreased by approximately \$54,000.

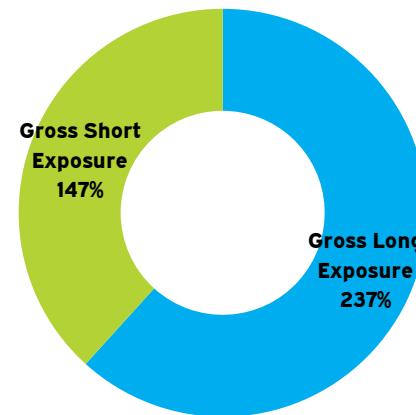
<sup>1</sup> As of March 31, 2020, except for Opportunistic and Real Assets, which are based on fair market values as of December 31, 2019.

## Absolute Return Strategies Portfolio – Strategy & Exposure Summary

Strategy Allocation



Exposure Summary



- The Absolute Return Portfolio's strategy allocation was largely unchanged over the quarter. Underlying partners are maintaining cash positions to satisfy redemptions for the ongoing trimming of the Absolute Return Portfolio.
- Net exposure for the Absolute Return Portfolio slightly increased over the quarter moving from 83% to 90% net exposure. Gross exposure (long plus short), which can serve as an approximation for risk taking has increased from 365% to 384% over the quarter.

## Absolute Return Strategies Portfolio – Performance &amp; Risk Summary

Performance Summary	Market Value (\$)	% of Portfolio	QTD	1 Yr	3 Yr	5 Yr	Inception
Absolute Return Strategies Portfolio	2,321,224,198	100.0	-11.3	-7.7	-0.5	0.1	2.3
HFRI FOF: Diversified Index			-7.6	-4.2	0.5	0.2	1.6
91 Day T-Bills +3%			1.1	4.9	4.8	4.2	3.7
91 Day T-Bills +4%			1.4	5.9	5.8	5.2	4.7
Rock Creek	1,189,992,531	51.3	-14.0	-9.6	-0.5	-0.2	2.3
K2	975,298,651	42.0	-7.6	-4.6	0.6	0.9	2.7
Appomattox	155,271,087	6.7	-13.2	-10.3	-3.9	-2.1	-1.8
EnTrust Global	661,929	0.0	-7.5	-32.9	-10.1	-5.7	-1.3

Trailing 3-Year Risk Summary	Standard Deviation (%)	Sharpe Ratio	Max Drawdown (%)	Max Drawdown Length	Beta	Correlation	Kurtosis	Skew
Absolute Return Strategies Portfolio	6.9	-0.32	-12.1	2	-	-	25.5	-4.7
HFRI Fund of Funds Diversified	5.5	-0.23	-8.1	2	1.15	0.92	9.9	-2.5
Russell 3000	15.8	0.14	-20.9	3	0.34	0.79	2.1	-1.3
MSCI EAFE	14.6	-0.24	-22.8	3	0.37	0.79	1.9	-1.2
MSCI Emerging Markets	17.4	-0.19	-28.7	26	0.29	0.74	1.3	-0.7
Bloomberg Barclays Global Agg	3.9	0.46	-4.8	7	0.66	0.37	-0.8	-0.2

Trailing 5-Year Risk Summary	Standard Deviation (%)	Sharpe Ratio	Max Drawdown (%)	Max Drawdown Length	Beta	Correlation	Kurtosis	Skew
Absolute Return Strategies Portfolio	5.8	-0.18	-12.1	2	-	-	29.0	-4.7
HFRI Fund of Funds Diversified	4.7	-0.20	-8.1	2	1.14	0.92	10.7	-2.4
Russell 3000	14.2	0.33	-20.9	3	0.32	0.78	2.2	-1.1
MSCI EAFE	14.1	-0.12	-22.8	3	0.31	0.76	1.1	-0.8
MSCI Emerging Markets	17.6	-0.08	-28.7	26	0.21	0.64	0.7	-0.2
Bloomberg Barclays Global Agg	4.6	0.33	-7.1	3	0.18	0.14	0.8	-0.6

## AIF Absolute Return Strategies Full Report

## Absolute Return Strategies Portfolio | As of March 31, 2020

Performance Summary										
	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date	
<b>Absolute Return Strategies Portfolio</b>	<b>2,321,224,198</b>	<b>100.0</b>	<b>-10.8</b>	<b>-11.3</b>	<b>-7.7</b>	<b>-0.5</b>	<b>0.1</b>	<b>2.3</b>	<b>Feb-11</b>	
HFRI FOF: Diversified Index			-6.9	-7.6	-4.2	0.5	0.2	1.6	Feb-11	
91 Day T-Bills +3%			0.4	1.1	4.9	4.8	4.2	3.7	Feb-11	
<b>Rock Creek</b>	<b>1,189,992,531</b>	<b>51.3</b>	<b>-13.2</b>	<b>-14.0</b>	<b>-9.6</b>	<b>-0.5</b>	<b>-0.2</b>	<b>2.3</b>	<b>Feb-11</b>	
91 Day T-Bills +3%			0.4	1.1	4.9	4.8	4.2	3.7	Feb-11	
91 Day T-Bills +4%			0.5	1.4	5.9	5.8	5.2	4.7	Feb-11	
Rock Creek - Core Portfolio	613,514,141	26.4	-7.8	-7.6	-3.8	1.3	0.8	2.9	Feb-11	
HFRI FOF: Conservative Index			-6.9	-7.5	-4.6	0.1	0.4	1.6	Feb-11	
Rock Creek - Liquid Portfolio	576,478,391	24.8	-18.3	-19.8	-15.1	--	--	-6.5	Jun-18	
HFRI Fund of Funds Composite Index			-7.6	-8.8	-5.5	0.0	0.0	-3.4	Jun-18	
<b>K2</b>	<b>975,298,651</b>	<b>42.0</b>	<b>-7.2</b>	<b>-7.6</b>	<b>-4.6</b>	<b>0.6</b>	<b>0.9</b>	<b>2.7</b>	<b>Apr-11</b>	
91 Day T-Bills +3%			0.4	1.1	4.9	4.8	4.2	3.7	Apr-11	
91 Day T-Bills +4%			0.5	1.4	5.9	5.8	5.2	4.7	Apr-11	
K2 - Core Portfolio	597,382,325	25.7	-6.1	-6.6	-4.9	0.5	0.9	2.7	Apr-11	
HFRI FOF: Conservative Index			-6.9	-7.5	-4.6	0.1	0.4	1.5	Apr-11	
K2 - Liquid Portfolio	377,916,326	16.3	-8.9	-9.1	-4.1	--	--	-1.8	Jul-18	
HFRI FOF: Diversified Index			-6.9	-7.6	-4.2	0.5	0.2	-2.4	Jul-18	
<b>Appomattox</b>	<b>155,271,087</b>	<b>6.7</b>	<b>-12.9</b>	<b>-13.2</b>	<b>-10.3</b>	<b>-3.9</b>	<b>-2.1</b>	<b>-1.8</b>	<b>Sep-14</b>	
91 Day T-Bills +3%			0.4	1.1	4.9	4.8	4.2	4.0	Sep-14	
Appomattox	149,530,089	6.4	-13.3	-13.6	-10.5	-4.0	-1.9	-1.7	Sep-14	
HFRI FOF: Conservative Index			-6.9	-7.5	-4.6	0.1	0.4	0.7	Sep-14	
Appomattox (Restructuring)	5,740,997	0.2	-0.1	-0.3	-5.2	-2.0	-1.1	-0.7	Oct-14	
HFRI Fund of Funds Composite Index			-7.6	-8.8	-5.5	0.0	0.0	0.6	Oct-14	
<b>EnTrust Permal</b>	<b>661,929</b>	<b>0.0</b>	<b>-2.3</b>	<b>-7.5</b>	<b>-32.9</b>	<b>-10.1</b>	<b>-5.7</b>	<b>-1.3</b>	<b>Mar-11</b>	
91 Day T-Bills +3%			0.4	1.1	4.9	4.8	4.2	3.7	Mar-11	
91 Day T-Bills +4%			0.5	1.4	5.9	5.8	5.2	4.7	Mar-11	
Permal - Portfolio A	264,543	0.0	-5.5	-4.9	-30.9	-9.5	-5.8	-1.2	Mar-11	
HFRI Fund of Funds Composite Index			-7.6	-8.8	-5.5	0.0	0.0	1.4	Mar-11	
Permal - Portfolio B	397,386	0.0	0.0	-9.2	-38.7	-13.8	-7.4	-3.9	Apr-13	
HFRI Fund of Funds Composite Index			-7.6	-8.8	-5.5	0.0	0.0	1.6	Apr-13	

## Absolute Return Strategies Portfolio | As of March 31, 2020

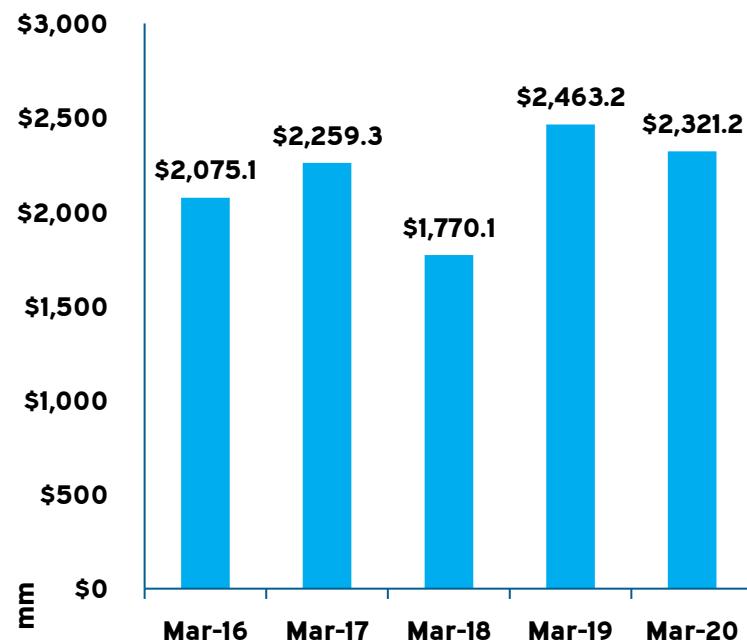
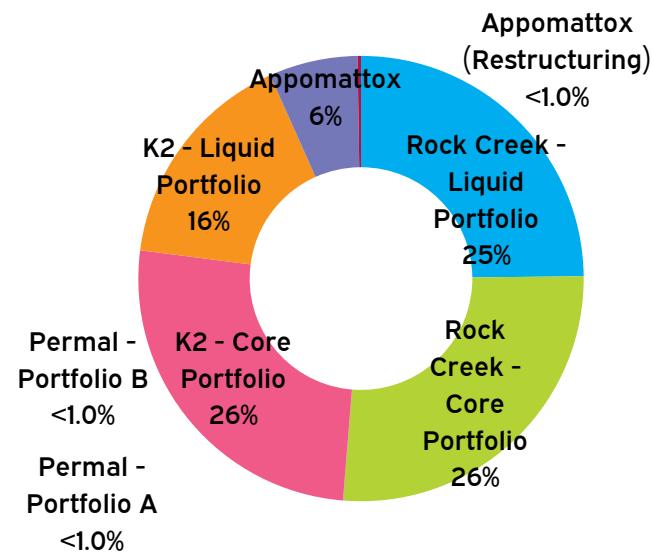
	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
<b>Absolute Return Strategies Portfolio</b>	<b>2,320,528,325</b>	<b>100.0</b>	<b>-10.8</b>	<b>-11.3</b>	<b>-7.7</b>	<b>-0.5</b>	<b>0.1</b>	<b>2.3</b>	<b>Feb-11</b>
HFRI FOF: Diversified Index			-6.9	-7.6	-4.2	0.5	0.2	1.6	Feb-11
91 Day T-Bills +3%			0.4	1.1	4.9	4.8	4.2	3.7	Feb-11
<b>CRPTF - Core + Liquid Portfolios Total</b>	<b>2,164,595,310</b>	<b>93.3</b>	<b>-10.6</b>	<b>-11.2</b>	<b>-7.4</b>	<b>0.0</b>	<b>0.3</b>	<b>2.5</b>	<b>Feb-11</b>
HFRI FOF: Diversified Index			-6.9	-7.6	-4.2	0.5	0.2	1.6	Feb-11
91 Day T-Bills +3%			0.4	1.1	4.9	4.8	4.2	3.7	Feb-11
<b>CRPTF - Core Portfolios Total</b>	<b>1,210,347,051</b>	<b>52.2</b>	<b>-7.0</b>	<b>-7.1</b>	<b>-4.4</b>	<b>0.9</b>	<b>0.8</b>	<b>2.8</b>	<b>Feb-11</b>
HFRI FOF: Conservative Index			-6.9	-7.5	-4.6	0.1	0.4	1.6	Feb-11
91 Day T-Bills +3%			0.4	1.1	4.9	4.8	4.2	3.7	Feb-11
S&P 500			-12.4	-19.6	-7.0	5.1	6.7	10.2	Feb-11
S&P/LSTA Leveraged Loan TR			-12.4	-13.0	-9.2	-0.8	1.1	2.6	Feb-11
<b>CRPTF - Liquid Portfolios Total</b>	<b>954,248,259</b>	<b>41.1</b>	<b>-14.8</b>	<b>-15.9</b>	<b>-11.0</b>	<b>--</b>	<b>--</b>	<b>-4.6</b>	<b>Jun-18</b>
HFRI FOF: Diversified Index			-6.9	-7.6	-4.2	0.5	0.2	-2.4	Jun-18
91 Day T-Bills +4%			0.5	1.4	5.9	5.8	5.2	6.1	Jun-18
S&P 500			-12.4	-19.6	-7.0	5.1	6.7	-0.5	Jun-18
S&P/LSTA Leveraged Loan TR			-12.4	-13.0	-9.2	-0.8	1.1	-3.9	Jun-18
HFRI Fund Weighted Composite Index			-8.5	-10.9	-6.7	-0.2	0.7	-4.1	Jun-18
MSCI ACWI			-13.5	-21.4	-11.3	1.5	2.8	-5.5	Jun-18
ICE BofAML US High Yield TR			-11.7	-13.1	-7.4	0.6	2.7	-1.4	Jun-18
<b>CRPTF - Horizon Portfolios Total</b>	<b>155,271,087</b>	<b>6.7</b>	<b>-12.9</b>	<b>-13.2</b>	<b>-10.3</b>	<b>-3.9</b>	<b>-2.1</b>	<b>-1.8</b>	<b>Sep-14</b>
HFRI FOF: Conservative Index			-6.9	-7.5	-4.6	0.1	0.4	0.7	Sep-14
91 Day T-Bills +3%			0.4	1.1	4.9	4.8	4.2	4.0	Sep-14
S&P 500			-12.4	-19.6	-7.0	5.1	6.7	6.8	Sep-14
S&P/LSTA Leveraged Loan TR			-12.4	-13.0	-9.2	-0.8	1.1	1.2	Sep-14

Core +Liquid Portfolios valuation does not include Entrust Permal.

## Absolute Return Strategies Portfolio | As of March 31, 2020

Investment Expense Analysis				
As Of March 31, 2020				
Name	Fee Schedule	Market Value	% of Portfolio	Estimated Fee Value
<b>Rock Creek</b>				
Rock Creek - Core Portfolio	0.35% of Assets	\$613,514,141	26.4%	\$2,147,299
Rock Creek - Liquid Portfolio	0.35% of Assets	\$576,478,391	24.8%	\$2,017,674
<b>K2</b>				
K2 - Core Portfolio	0.35% of Assets	\$597,382,325	25.7%	\$2,090,838
K2 - Liquid Portfolio	0.35% of Assets	\$377,916,326	16.3%	\$1,322,707
<b>Appomattox</b>				
Appomattox	0.40% of Assets	\$149,530,089	6.4%	\$598,120
Appomattox (Restructuring)	0.40% of Assets	\$5,740,997	0.2%	\$22,964
<b>EnTrust Permal</b>				
Permal - Portfolio A	0.50% of Assets	\$264,543	0.0%	\$1,323
Permal - Portfolio B	0.50% of Assets	\$397,386	0.0%	\$1,987
<b>Total</b>		<b>\$2,321,224,198</b>	<b>100.0%</b>	<b>\$8,202,913</b>

Permal portfolios A and B also charge performance based fees of 5% of the funds' returns above the USD LIBOR +2%.

**Historical Market Value****Manager Allocation**

## Hedge Fund Program Report – Trailing 3-Year Risk Summary | As of March 31, 2020

	Standard Deviation (%)	Sharpe Ratio	Max Drawdown (%)	Max Drawdown Length	Beta	Correlation	Kurtosis	Skew
Absolute Return Strategies Portfolio	6.9	-0.32	-12.1	2	-	-	25.5	-4.7
HFRI Fund of Funds Diversified	5.5	-0.23	-8.1	2	1.15	0.92	9.9	-2.5
Russell 3000	15.8	0.14	-20.9	3	0.34	0.79	2.1	-1.3
MSCI EAFE	14.6	-0.24	-22.8	3	0.37	0.79	1.9	-1.2
MSCI Emerging Markets	17.4	-0.19	-28.7	26	0.29	0.74	1.3	-0.7
Bloomberg Barclays Global Aggregate	3.9	0.46	-4.8	7	0.66	0.37	-0.8	-0.2
Rock Creek - Core Portfolio	5.3	-0.09	-8.3	2	-	-	21.7	-4.2
MSCI ACWI	14.9	-0.02	-21.4	3	0.29	0.82	2.2	-1.3
HFRI FOF: Conservative Index	4.7	-0.35	-7.9	2	1.10	0.98	19.9	-3.9
91 Day T-Bills +3%	0.1	21.07	0.0	0	-0.07	0.00	-1.2	-0.2
Rock Creek – Liquid Portfolio <sup>1</sup>	14.4	-0.60	-20.4	2	-	-	18.1	-4.1
MSCI ACWI	17.9	-0.43	-21.4	3	0.62	0.77	0.7	-0.9
ICE BofAML US High Yield TR	10.4	-0.34	-13.1	2	1.32	0.95	11.3	-2.8
HFRI Fund of Funds Composite Index	7.1	-0.78	-9.0	2	1.86	0.91	7.6	-2.3
91 Day T-Bills +4%	0.1	41.21	0.0	0	53.26	0.36	-1.3	-0.4

<sup>1</sup> Rock Creek – Liquid Portfolio and benchmark risk data are calculated from inception date of 6/30/2018.

## Hedge Fund Program Report – Trailing 3-Year Risk Summary | As of March 31, 2020

	Standard Deviation (%)	Sharpe Ratio	Max Drawdown (%)	Max Drawdown Length	Beta	Correlation	Kurtosis	Skew
K2 - Core Portfolio	4.4	-0.29	-7.6	2	-	-	15.6	-3.4
S&P 500	15.2	0.22	-19.6	3	0.24	0.82	1.6	-1.2
S&P/LSTA Leveraged Loan TR	7.9	-0.32	-13.5	2	0.51	0.92	25.8	-4.7
HFRI FOF: Conservative Index	4.7	-0.35	-7.9	2	0.89	0.96	19.9	-3.9
91 Day T-Bills +3%	0.1	21.07	0.0	0	-0.59	-0.02	-1.2	-0.2
K2 - Liquid Portfolio <sup>2</sup>	8.1	-0.49	-9.8	2	-	-	10.9	-3.0
S&P 500	19.2	-0.27	-19.6	3	0.35	0.83	-0.1	-0.8
S&P/LSTA Leveraged Loan TR	10.5	-0.65	-13.5	2	0.72	0.95	14.0	-3.5
HFRI FOF: Diversified Index	6.8	-0.70	-8.1	2	1.16	0.97	6.7	-2.2
91 Day T-Bills +4%	0.1	39.24	0.0	0	22.97	0.29	-1.4	-0.5

<sup>2</sup> K2 – Liquid Portfolio and benchmark risk data are calculated from inception date of 7/31/2018.

## Hedge Fund Program Report - Trailing 5-Year Risk Summary | As of March 31, 2020

	Standard Deviation (%)	Sharpe Ratio	Max Drawdown (%)	Max Drawdown Length	Beta	Correlation	Kurtosis	Skew
Absolute Return Strategies Portfolio	5.8	-0.18	-12.1	2	-	-	29.0	-4.7
HFRI Fund of Funds Diversified	4.7	-0.20	-8.1	2	1.14	0.92	10.7	-2.4
Russell 3000	14.2	0.33	-20.9	3	0.32	0.78	2.2	-1.1
MSCI EAFE	14.1	-0.12	-22.8	3	0.31	0.76	1.1	-0.8
MSCI Emerging Markets	17.6	-0.08	-28.7	26	0.21	0.64	0.7	-0.2
Bloomberg Barclays Global Aggregate	4.6	0.33	-7.1	3	0.18	0.14	0.8	-0.6
Rock Creek – Core Portfolio	4.8	-0.07	-9.0	9	-	-	17.3	-3.4
MSCI ACWI	13.7	0.13	-21.4	3	0.28	0.81	2.0	-0.9
HFRI FOF Conservative Index	3.9	-0.19	-7.9	2	1.18	0.96	24.8	-4.2
91 Day T-Bills +3%	0.2	12.69	0.0	0	1.10	0.05	-1.5	0.1
Rock Creek - Liquid Portfolio <sup>1</sup>	-	-	-	-	-	-	-	-
MSCI ACWI	-	-	-	-	-	-	-	-
ICE BofAML US High Yield TR	-	-	-	-	-	-	-	-
HFRI Fund of Funds Composite	-	-	-	-	-	-	-	-
91 Day T-Bills +4%	-	-	-	-	-	-	-	-

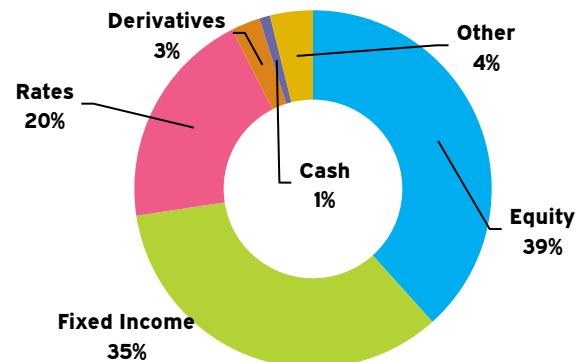
<sup>1</sup> Rock Creek- Liquid Portfolio inception based risk statistics are located in the 3-year risk table.

## Hedge Fund Program Report - Trailing 5-Year Risk Summary | As of March 31, 2020

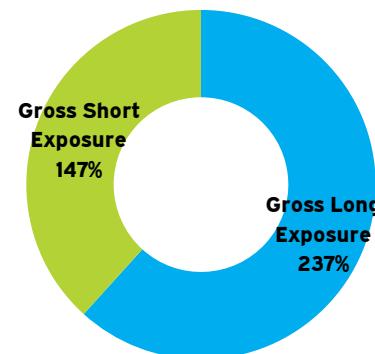
	Standard Deviation (%)	Sharpe Ratio	Max Drawdown (%)	Max Drawdown Length	Beta	Correlation	Kurtosis	Skew
K2 - Core Portfolio	4.1	-0.06	-8.2	9	-	-	11.2	-2.6
S&P 500	13.7	0.41	-19.6	3	0.23	0.76	1.8	-1.0
S&P/LSTA Leveraged Loan TR	6.4	0.00	-13.5	2	0.54	0.85	35.0	-5.2
HFRI FOF: Conservative Index	3.9	-0.19	-7.9	2	0.98	0.93	24.8	-4.2
91 Day T-Bills +3%	0.2	12.69	0.0	0	-0.19	-0.01	-1.5	0.1
K2 - Liquid Portfolio <sup>2</sup>	-	-	-	-	-	-	-	-
S&P 500	-	-	-	-	-	-	-	-
S&P/LSTA Leveraged Loan TR	-	-	-	-	-	-	-	-
HFRI FOF: Diversified Index	-	-	-	-	-	-	-	-
91 Day T-Bills +4%	-	-	-	-	-	-	-	-

<sup>2</sup> K2 - Liquid Portfolio inception based risk statistics are located in the 3-year risk table.

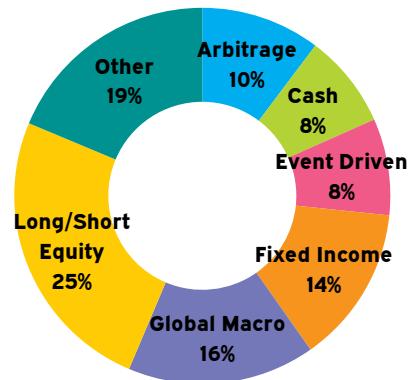
#### Instrument Allocation<sup>1</sup>



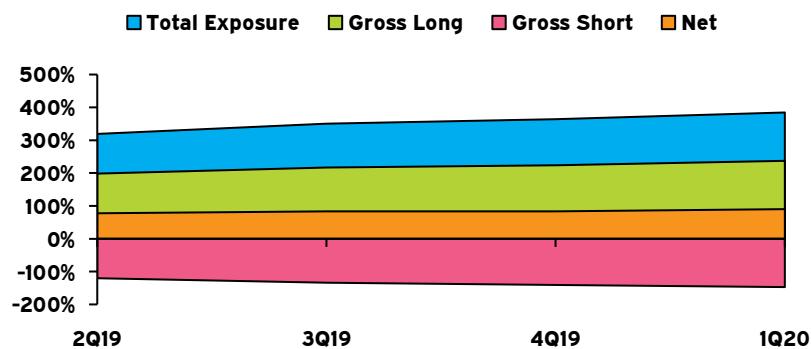
#### Exposure Report



#### Strategy Allocation



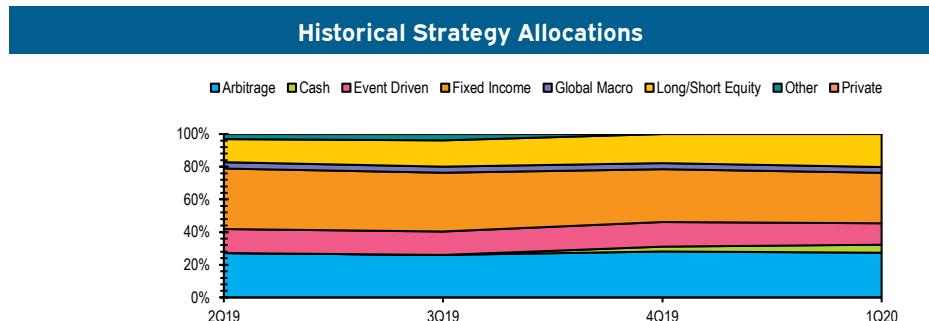
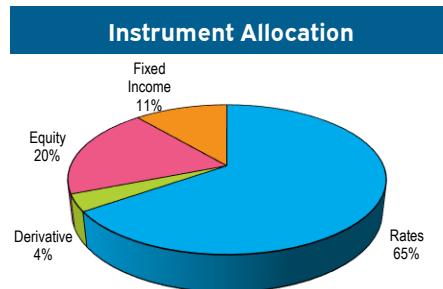
#### Exposure History



<sup>1</sup> 1% Cash allocation comes from Appomattox (Restructuring).

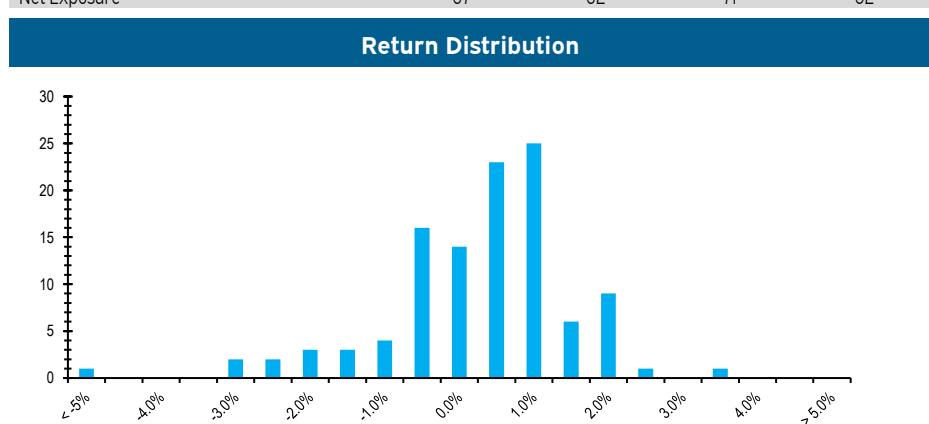
### Rock Creek - Core Portfolio | As of March 31, 2020

Account Information	
Mandate:	Hedge Fund, Fund of Funds
Market Value:	\$613.5 M
Portfolio Manager:	Team
Location:	Washington, DC
Inception Date:	2/1/2011
Account Type:	Separately Managed
# of Investments:	27
Fee Schedule:	0.35% Management Fee



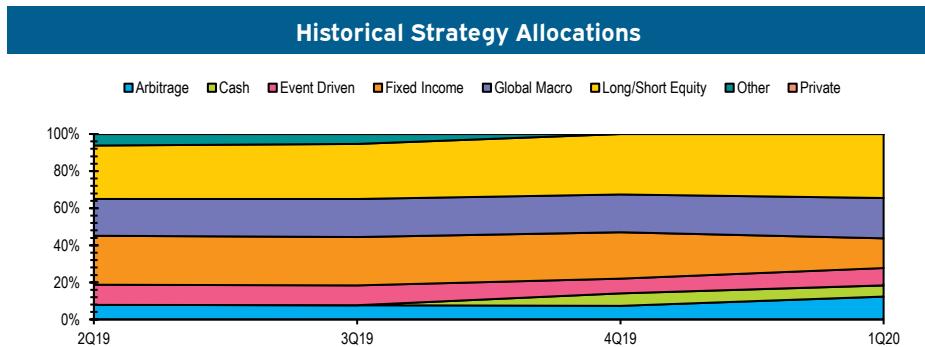
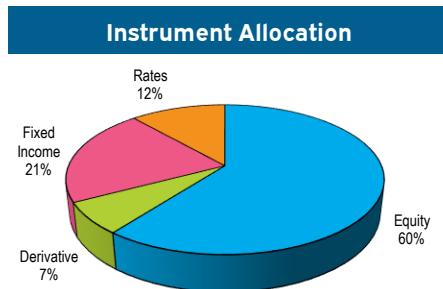
Portfolio Performance Summary					
	1Q20 (%)	1 YR (%)	3 YR (%)	5 YR (%)	Since 2/2011 (%)
Rock Creek - Core Portfolio	-7.6	-3.8	1.3	0.8	2.9
HFRI FOF: Conservative Index	-7.5	-4.6	0.1	0.4	1.6
5 Year Risk Summary					
	Standard Deviation (%)	Sharpe Ratio	Max Drawdown (%)	Max Drawdown Length	Beta
Rock Creek - Core Portfolio	4.8	-0.07	-9.0	9	-
MSCI ACWI	13.7	0.13	-21.4	3	0.28
HFRI FOF: Conservative Index	3.9	-0.19	-7.9	2	1.18
91 Day T-Bills +3%	0.2	11.69	0.0	0	1.10
					Correlation

Geographic Exposure Allocation (%)	3/31/2020	12/31/2019	9/30/2019	6/30/2019
North America	71	70	71	68
Developed Europe	13	13	12	12
Developed Asia	10	11	11	14
Emerging Markets	6	6	6	6
Exposure Report (%)	3/31/2020	12/31/2019	9/30/2019	6/30/2019
Total Gross Exposure	630	530	513	397
Gross Long Exposure	348	296	292	229
Gross Short Exposure	282	234	221	168
Net Exposure	67	62	71	62



### Rock Creek - Liquid Portfolio | As of March 31, 2020

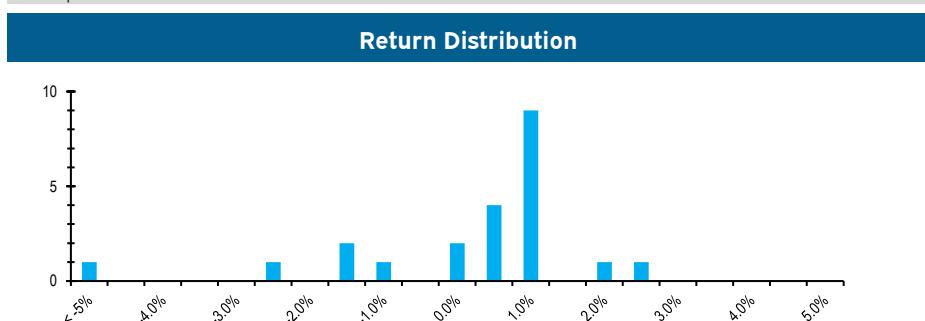
Account Information	
Mandate:	Hedge Fund, Fund of Funds
Market Value:	\$576.5 M
Portfolio Manager:	Team
Location:	Washington, DC
Inception Date:	6/1/2018
Account Type:	Separately Managed
# of Investments:	12
Fee Schedule:	0.35% Management Fee



Portfolio Performance Summary					
	1Q20	1 YR	3 YR	5 YR	Since 6/2018
	(%)	(%)	(%)	(%)	(%)
Rock Creek - Liquid Portfolio	-19.8	-15.1	NA	NA	-6.5
HFRI Fund of Funds Composite Index	-8.8	-5.5	0.0	0.0	-3.4

5 Year Risk Summary						
	Standard Deviation (%)	Sharpe Ratio	Max Drawdown (%)	Max Drawdown Length	Beta	Correlation
Rock Creek - Liquid Portfolio <sup>1</sup>	14.4	-0.60	-20.4	2	-	-
MSCI ACWI	17.9	-0.43	-21.4	3	0.62	0.77
ICE BofAML US High Yield TR	10.4	-0.34	-13.1	2	1.32	0.95
HFRI FOF Composite Index	7.1	-0.78	-9.0	2	1.86	0.91
91 Day T-Bills +4%	0.1	41.21	0.0	3	53.36	0.36

Geographic Exposure Allocation (%)	3/31/2020	12/31/2019	9/30/2019	6/30/2019
North America	86	87	86	86
Developed Europe	5	5	5	5
Emerging Markets	5	5	5	5
Developed Asia	4	3	4	4
Exposure Report (%)	3/31/2020	12/31/2019	9/30/2019	6/30/2019
Total Gross Exposure	166	193	194	187
Gross Long Exposure	127	156	158	153
Gross Short Exposure	39	37	36	34
Net Exposure	88	118	122	118

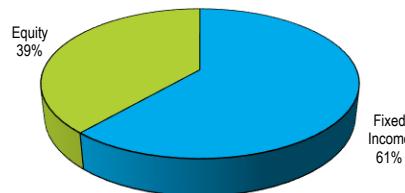


<sup>1</sup> Rock Creek - Liquid Portfolio and benchmark risk data are calculated from inception date of 6/30/2018.

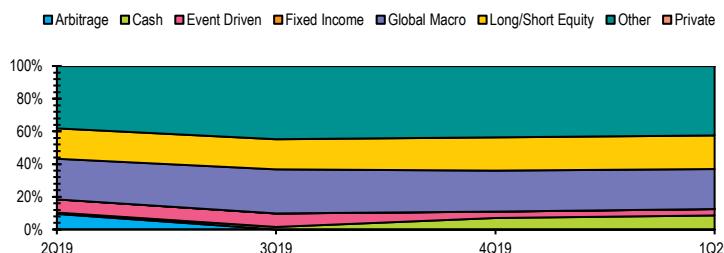
### K2 - Core Portfolio | As of March 31, 2020

Account Information	
Mandate:	Hedge Fund, Fund of Funds
Market Value:	\$597.4 M
Portfolio Manager:	Team
Location:	Stamford, CT
Inception Date:	4/1/2011
Account Type:	Separately Managed
# of Investments:	22
Fee Schedule:	0.35% of assets

### Instrument Allocation



### Historical Strategy Allocations

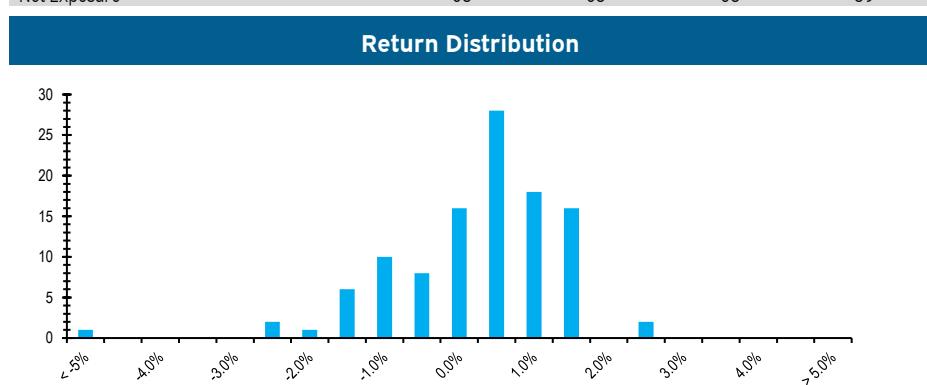


Portfolio Performance Summary					
	1Q20 (%)	1 YR (%)	3 YR (%)	5 YR (%)	Since 4/2011 (%)
K2 - Core Portfolio	-6.6	-4.9	0.5	0.9	2.7
HFRI FOF: Conservative Index	-7.5	-4.6	0.1	0.4	1.5

Geographic Exposure Allocation (%)	3/31/2020	12/31/2019	9/30/2019	6/30/2019
North America	70	67	65	65
Developed Europe	13	14	14	13
Emerging Markets	12	13	15	16
Developed Asia	5	6	7	6

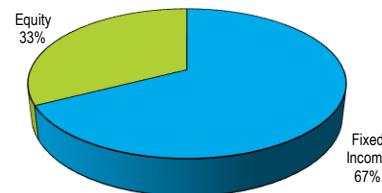
Exposure Report (%)	3/31/2020	12/31/2019	9/30/2019	6/30/2019
Total Gross Exposure	589	538	493	468
Gross Long Exposure	326	302	279	263
Gross Short Exposure	263	236	214	205
Net Exposure	63	65	65	59



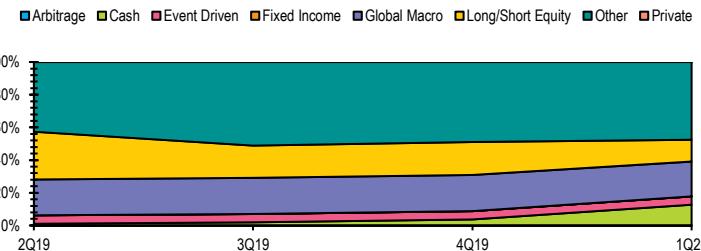
### K2 - Liquid Portfolio | As of March 31, 2020

Account Information	
Mandate:	Hedge Fund, Fund of Funds
Market Value:	\$377.9 M
Portfolio Manager:	Team
Location:	Stamford, CT
Inception Date:	7/1/2018
Account Type:	Separately Managed
# of Investments:	13
Fee Schedule:	0.35% of assets

### Instrument Allocation



### Historical Strategy Allocations



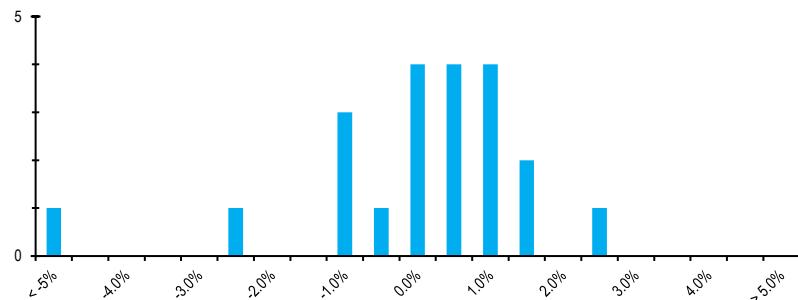
### Portfolio Performance Summary

	1Q20	1 YR	3 YR	5 YR	Since 7/2018
	(%)	(%)	(%)	(%)	(%)
K2 - Liquid Portfolio	-9.1	-4.1	NA	NA	-1.8
HFR1 FOF: Diversified Index	-7.6	-4.2	0.5	0.2	-2.4

### 5 Year Risk Summary

	Standard Deviation (%)	Sharpe Ratio	Max Drawdown (%)	Max Drawdown Length	Beta	Correlation
K2 - Liquid Portfolio <sup>1</sup>	8.1	-0.49	-9.8	2	-	-
S&P 500	19.2	-0.27	-19.6	3	0.35	0.83
S&P/LSTA Leveraged Loan TR	10.5	-0.65	-13.5	2	0.72	0.95
HFR1 FOF: Diversified Index	6.8	-0.70	-8.1	2	1.16	0.97
91 Day T-Bills +4%	0.1	39.24	0.0	0	22.97	0.29

### Return Distribution

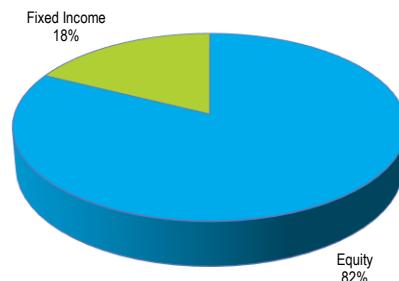


<sup>1</sup> K2 - Liquid Portfolio and benchmark risk data are calculated from inception date of 7/31/2018.

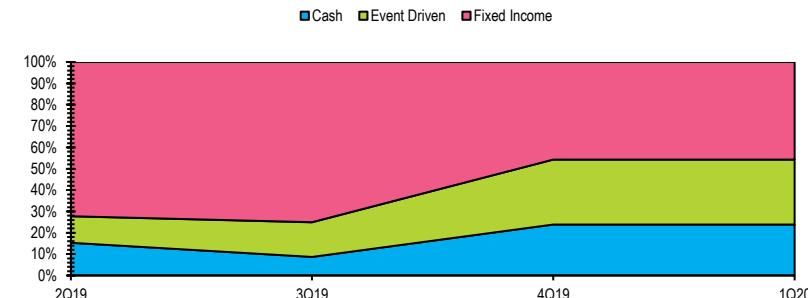
Permal Portfolio A | As of March 31, 2020

Account Information	
Mandate:	Hedge Fund, Fund of Funds
Market Value:	\$0.3 M
Portfolio Manager:	Team
Location:	New York, NY
Inception Date:	3/31/2011
Account Type:	Separately Managed
# of Investments:	Not Provided
Fee Schedule:	0.5% of assets

### Instrument Allocation



### Historical Strategy Allocations



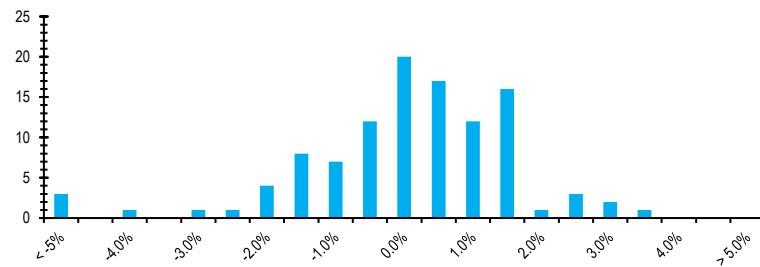
### Geographic Exposure Allocation (%)

	3/31/2020	12/31/2019	9/30/2019	6/30/2019
North America	65	65	31	37
Developed Europe	19	19	47	43
Developed Asia	15	15	5	4
Emerging Markets	0	0	17	16

### Exposure Report (%)

	3/31/2020	12/31/2019	9/30/2019	6/30/2019
Total Gross Exposure	42	42	66	67
Gross Long Exposure	42	42	66	67
Gross Short Exposure	0	0	0	0
Net Exposure	42	42	66	67

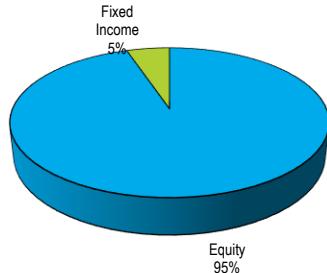
### Return Distribution



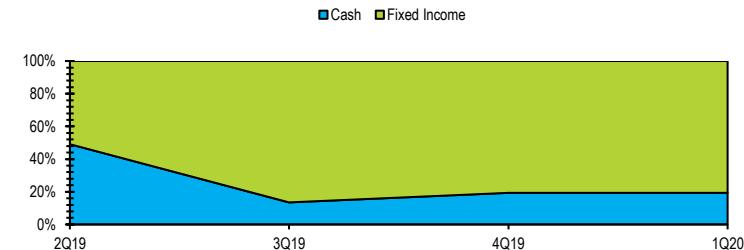
Permal Portfolio B | As of March 31, 2020

Account Information	
Mandate:	Hedge Fund, Fund of Funds
Market Value:	\$0.4 M
Portfolio Manager:	Team
Location:	New York, NY
Inception Date:	4/1/2013
Account Type:	Separately Managed
# of Investments:	Not Provided
Fee Schedule:	0.5% of assets

### Instrument Allocation



### Historical Strategy Allocations



### Portfolio Performance Summary

	1Q20 (%)	1 YR (%)	3 YR (%)	5 YR (%)	Since 4/2013 (%)
Permal - Portfolio B	-9.2	-38.7	-13.8	-7.4	-3.9
HFRI Fund of Funds Composite Index	-8.8	-5.5	0.0	0.0	1.6

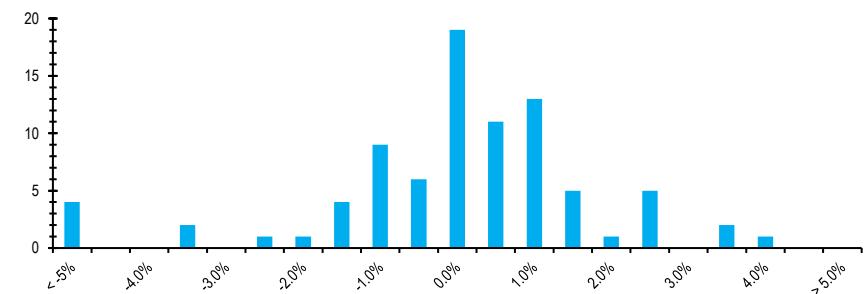
### Geographic Exposure Allocation (%)

	3/31/2020	12/31/2019	9/30/2019	6/30/2019
North America	100	100	100	100
Emerging Markets	0	0	0	0
Developed Europe	0	0	0	0
Developed Asia	0	0	0	0

### Exposure Report (%)

	3/31/2020	12/31/2019	9/30/2019	6/30/2019
Total Gross Exposure	51	51	62	51
Gross Long Exposure	51	51	62	51
Gross Short Exposure	0	0	0	0
Net Exposure	51	51	62	51

### Return Distribution



Absolute Return Strategies Portfolio – Investment Guidelines Summary

Prudence Crandall Core Portfolio

	Rock Creek	K2
Benchmark	HFRI Fund of Funds Conservative	HFRI Fund of Funds Conservative
Target Return	13-Week T-Bills +300	13-Week T-Bills +300
Target Volatility	< 5%	< 5%
Risk Management		
<i>Target Beta</i>	.25 (MSCI ACWI)	.20 (S&P 500 & S&P/LSTA Leveraged Loan Index)
<i>Target Correlation</i>	N/A	.50 (S&P 500)
<i>Maximum Drawdown</i>	Monthly: 3% Cycle (3-5 Years): 10%	Monthly: 2% Cycle (3-5 Years): 5%
Manager Concentration		
<i>Minimum</i>	10	10
<i>Maximum</i>	30	30
Strategy Concentration		
<i>Minimum</i>	N/A	N/A
<i>Maximum</i>	40%	50%
Liquidity	-	-
<i>Weekly</i>	-	-
<i>Monthly</i>	-	-
<i>Quarterly</i>	50%	50%
<i>Semi-Annual</i>	-	-
<i>Annual</i>	80%	80%
<i>&gt;Annual</i>	90%	90%
<i>Side Pockets (Max)</i>	10%	10%

## Absolute Return Strategies Portfolio – Investment Guidelines Summary

## Prudence Crandall Liquid Portfolio

	Rock Creek	K2
Benchmark	HFRI Fund of Funds Index	HFRI Fund of Funds Diversified
Target Return	13-Week T-Bills +400	13-Week T-Bills +400
Target Volatility	4-6%	< 6%
Risk Management		
<i>Target Beta</i>	.20-.30 (MSCI ACWI) .25-.35 (ML High Yield)	.30 (S&P 500 & S&P/LSTA Leveraged Loan Index)
<i>Target Correlation</i>	N/A	.80 (S&P 500)
Manager Concentration		
<i>Minimum</i>	5	5
<i>Maximum</i>	12	15
Strategy Concentration		
<i>Minimum</i>	N/A	N/A
<i>Maximum</i>	N/A	25%
Liquidity		
<i>Daily</i>	10-30%	-
<i>Weekly</i>	-	-
<i>Monthly</i>	40-70%	90%
<i>Quarterly</i>	10-30%	100%
<i>Semi-Annual</i>	-	-
<i>Annual</i>	-	-
<i>&gt;Annual</i>	-	-
<i>Side Pockets</i>	-	-

## **AIF Connecticut Horizon Fund (CHF) Portfolio**

Connecticut Horizon Fund – Performance | As of March 31, 2020

	1Q20 (%)	1 YR (%)	3 YR (%)	5 YR (%)	Since Inception Date	Since Inception (%)
Connecticut Horizon Fund	-13.2	-10.3	-3.9	-2.1	9/1/2014	-1.8
Appomattox	-13.2	-10.3	-3.9	-2.1	9/1/2014	-1.8
<i>HFRI FOF: Conservative Index</i>	-7.5	-4.6	0.1	0.4	NA	0.7
<i>91 Day T-Bills +3%</i>	1.1	4.9	4.8	4.2	NA	4.0
Appomattox	-13.6	-10.5	-4.0	-1.9	9/1/2014	-1.7
<i>HFRI FOF: Conservative Index</i>	-7.5	-4.6	0.1	0.4	NA	0.7
<i>91 Day T-Bills +3%</i>	1.1	4.9	4.8	4.2	NA	4.0
Appomattox (Restructuring)	-0.3	-5.2	-2.0	-1.1	10/1/2014	-0.7
<i>HFRI FOF: Conservative Index</i>	-8.4	-5.1	0.1	0.1	NA	0.7
<i>91 Day T-Bills +3%</i>	1.1	4.9	4.8	4.2	NA	4.1

## Connecticut Horizon Fund – Trailing 3-Year Risk Summary | As of March 31, 2020

	Standard Deviation (%)	Sharpe Ratio	Max Drawdown (%)	Max Drawdown Length	Beta	Correlation	Kurtosis	Skew
Connecticut Horizon Fund	8.0	-0.71	-13.8	2	-	-	27.2	-4.9
Appomattox	8.4	-0.68	-14.9	26	-	-	25.2	-4.7
HFRI FOF: Conservative Index	4.7	-0.35	-7.9	2	1.69	0.95	19.9	-3.9
91 Day T-Bills +3%	0.1	21.07	0.0	0	0.49	0.01	-1.2	-0.2
S&P 500	15.2	0.22	-19.6	3	0.40	0.72	1.6	-1.2
S&P/LSTA Leveraged Loan TR	7.9	-0.32	-13.5	2	0.99	0.93	25.8	-4.7
Appomattox (Restructuring)	3.2	-1.16	-7.4	18	-	-	4.2	-1.3

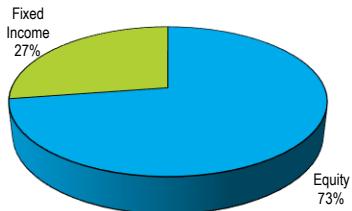
## Connecticut Horizon Fund – Trailing 5-Year Risk Summary | As of March 31, 2020

	Standard Deviation (%)	Sharpe Ratio	Max Drawdown (%)	Max Drawdown Length	Beta	Correlation	Kurtosis	Skew
Connecticut Horizon Fund	6.5	-0.50	-13.8	2	-	-	37.0	-5.5
Appomattox	6.8	-0.45	-14.9	26	-	-	34.9	-5.3
HFRI FOF: Conservative Index	3.9	-0.19	-7.9	2	1.64	0.89	24.8	-4.2
91 Day T-Bills +3%	0.2	12.69	0.0	0	-2.08	-0.07	-1.5	0.1
S&P 500	13.7	0.41	-19.6	3	0.34	0.69	1.8	-1.0
S&P/LSTA Leveraged Loan TR	6.4	0.00	-13.5	2	0.95	0.89	35.0	-5.2
Appomattox (Restructuring)	3.4	-0.68	-7.4	18	-	-	2.1	-0.6

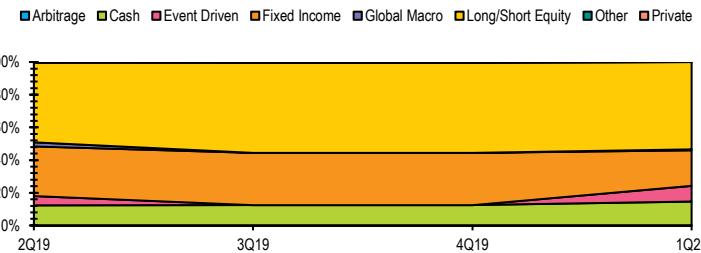
Appomattox | As of March 31, 2020

Account Information	
Mandate:	Hedge Fund, Fund of Funds
Market Value:	\$149.5 M
Portfolio Manager:	Team
Location:	New York, NY
Inception Date:	9/1/2014
Account Type:	Separately Managed
# of Investments:	20
Fee Schedule:	0.40% Management Fee

### Instrument Allocation



### Historical Strategy Allocations



Portfolio Performance Summary					
	1Q20	1 YR	3 YR	5 YR	Since 9/2014
	(%)	(%)	(%)	(%)	(%)
Appomattox	-13.6	-10.5	-4.0	-19	-1.7
HFRI FOF: Conservative Index	-7.5	-4.6	0.1	0.4	0.7

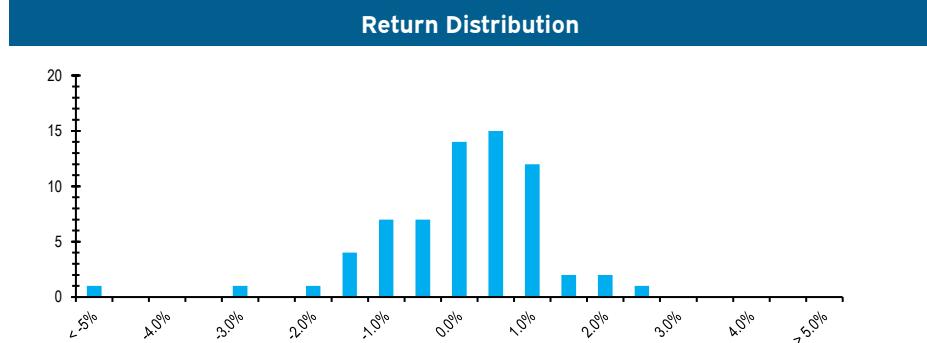
### 5 Year Risk Summary

	Standard Deviation (%)	Sharpe Ratio	Max Drawdown (%)	Max Drawdown Length	Beta	Correlation
	(%)		(%)			
Appomattox	6.8	-0.45	-14.9	26	-	-
HFRI FOF: Conservative Index	3.9	-0.19	-7.9	2	1.64	0.89
91 Day T-Bills +3%	0.2	12.69	0.0	0	-2.08	-0.07
S&P 500	13.7	0.41	-19.6	3	0.34	0.69
S&P/LSTA Leveraged Loan TR	6.4	0.00	-13.5	2	0.95	0.89

Geographic Exposure Allocation (%)	3/31/2020	12/31/2019	9/30/2019	6/30/2019
North America	80	81	81	83
Developed Europe	12	11	12	10
Emerging Markets	7	2	1	2
Developed Asia	0	6	6	5

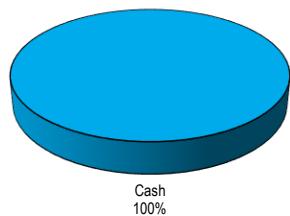
Exposure Report (%)	3/31/2020	12/31/2019	9/30/2019	6/30/2019
Total Gross Exposure	151	144	133	137
Gross Long Exposure	103	103	89	98
Gross Short Exposure	48	41	44	39
Net Exposure	56	63	45	59



### Appomattox (Restructuring) | As of March 31, 2020

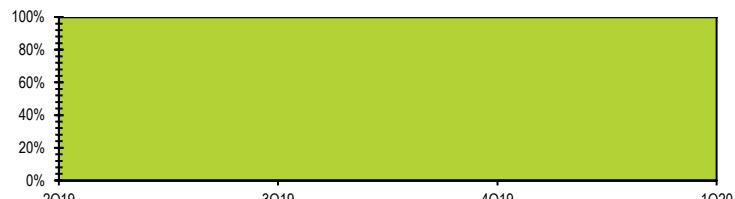
Account Information	
Mandate:	Hedge Fund, Fund of Funds
Market Value:	\$5.7 M
Portfolio Manager:	Team
Location:	New York, NY
Inception Date:	10/1/2014
Account Type:	Separately Managed
# of Investments:	Not Provided
Fee Schedule:	0.40% Management Fee
Liquidity Constraints:	

### Instrument Allocation



### Historical Strategy Allocations

Legend: Arbitrage (Blue), Cash (Green), Event Driven (Red), Fixed Income (Orange), Global Macro (Yellow), Long/Short Equity (Purple), Other (Dark Blue), Private (Dark Green)



### Portfolio Performance Summary

	1Q20	1 YR	3 YR	5 YR	Since 10/2014
	(%)	(%)	(%)	(%)	(%)
Appomattox (Restructuring)	-0.3	-5.2	-2.0	-1.1	-0.7
HFRI Fund of Funds Composite Index	-8.8	-5.5	0.0	0.0	0.6

### 5 Year Risk Summary

	Standard Deviation (%)	Sharpe Ratio	Max Drawdown	Max Drawdown Length	Beta	Correlation
Appomattox (Restructuring)	3.4	-0.68	-7.4	18	-	-

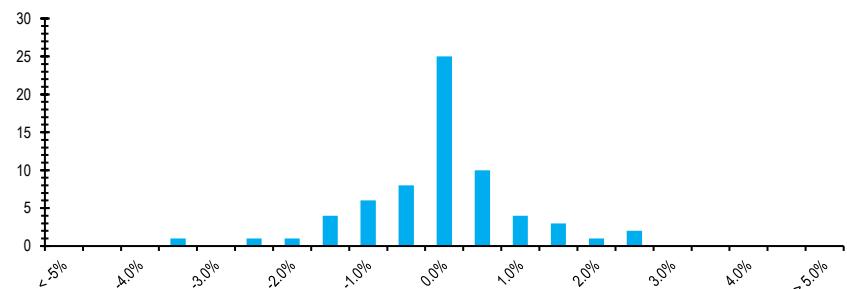
### Geographic Exposure Allocation (%)

	3/31/2020	12/31/2019	9/30/2019	6/30/2019
Developed Asia	0	0	0	0
Emerging Markets	0	0	0	0
North America	0	0	0	0
Developed Europe	0	0	0	0

### Exposure Report (%)

	3/31/2020	12/31/2019	9/30/2019	6/30/2019
Total Gross Exposure	0	0	0	0
Gross Long Exposure	0	0	0	0
Gross Short Exposure	0	0	0	0
Net Exposure	0	0	0	0

### Return Distribution



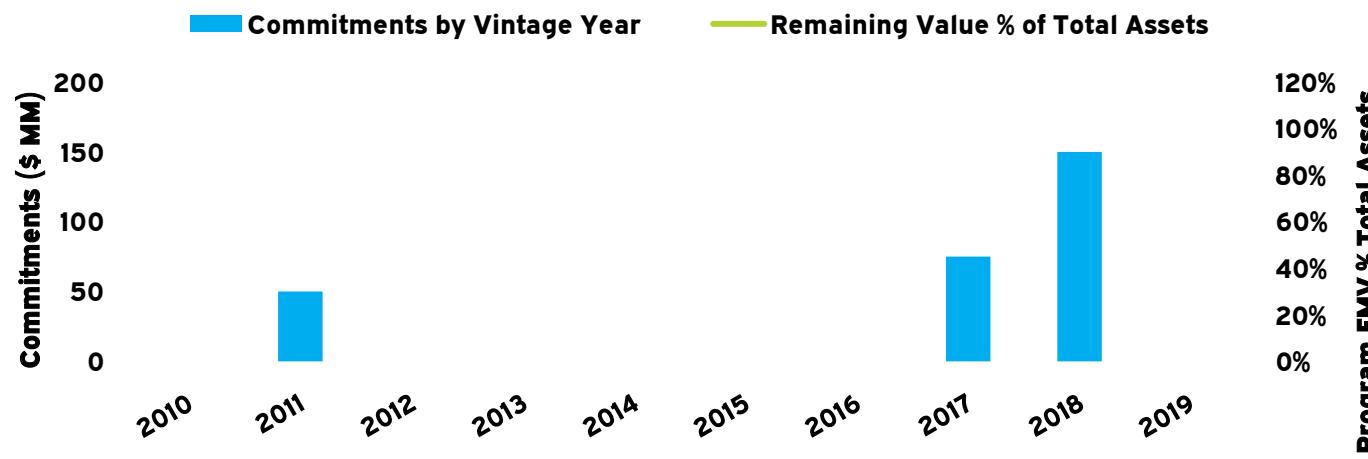
## Thomas Welles Fund Portfolio

Appomattox	
Benchmark	HFRI Fund of Funds Conservative
Target Return	13-Week T-Bills +300
Target Volatility	< 5%
Risk Management	
<i>Target Beta</i>	.35 (S&P 500 & S&P/LSTA Leveraged Loan Index)
<i>Target Correlation</i>	.80 (S&P 500)
<i>Maximum Drawdown</i>	Monthly: N/A Cycle (3-5 Years): N/A
Manager Concentration	
<i>Minimum</i>	7
<i>Maximum</i>	20
Strategy Concentration	
<i>Minimum</i>	N/A
<i>Maximum</i>	30%
Liquidity	
<i>Weekly</i>	
<i>Monthly</i>	
<i>Quarterly</i>	50%
<i>Semi-Annual</i>	
<i>Annual</i>	80%
<i>&gt;Annual</i>	90%
<i>Side Pockets (Max)</i>	10%

## **AIF Opportunistic Portfolio**

#### Introduction

In June 2019, Meketa was hired as an alternative investment consultant for the Connecticut Retirement Plans and Trust Funds Alternative Investment Funds ("AIF") account. Prior to this engagement, members of the Investment Advisory Council ("IAC") approved the discontinuation of the Opportunistic Debt Program and, therefore, there is no target allocation currently in place as the Plan does not intend to make any new partnership commitments.



#### Program Status

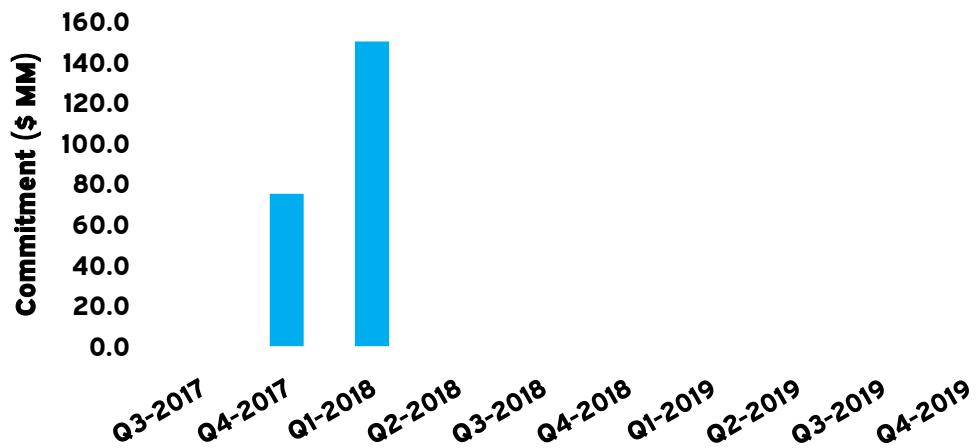
No. of Investments	4
Committed (\$ MM)	275.0
Contributed (\$ MM)	237.2
Distributed (\$ MM)	75.5
Remaining Value (\$ MM)	201.4

#### Performance Since Inception

	Program	Benchmark
DPI	0.32x	0.51x
TVPI	1.17x	1.28x
IRR	11.3%	9.5%

## Commitments

## Recent Quarterly Commitments

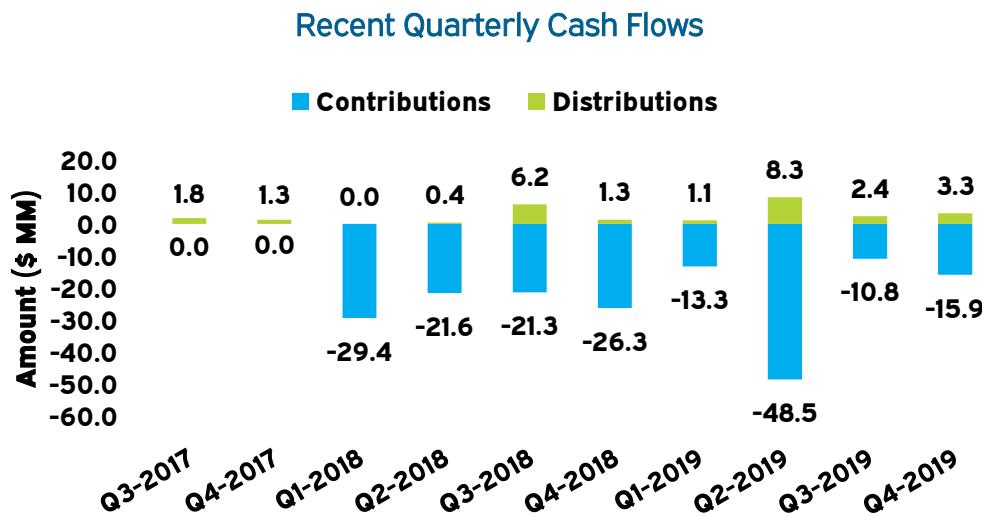


## Commitments This Quarter

Fund	Strategy	Region	Amount (MM)
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None to report.

#### Cash Flows



#### Largest Contributions This Quarter

Fund	Vintage	Strategy	Region	Amount (\$MM)
Crescent DL II	2017	Direct Lending	North America	10.30
Anchorage VI	2018	Distressed	Global: All	5.63

#### Largest Distributions This Quarter

Fund	Vintage	Strategy	Region	Amount (\$MM)
Owl Rock I	2018	Direct Lending	North America	1.73
Marathon Euro Credit	2011	Distressed	Western Europe	1.10
Crescent DL II	2017	Direct Lending	North America	0.47

## Significant Events

- Crescent Direct Lending Fund II called \$10.3 million during the quarter to fund five new portfolio investments.
- Anchorage Illiquid Opportunities VI called \$5.6 million during the quarter to fund follow-on investments, management fees, and the working capital needs of the partnership.
- Owl Rock Capital Corporation I distributed \$1.7 million during the quarter primarily in dividend income received in conjunction with various existing portfolio investments.

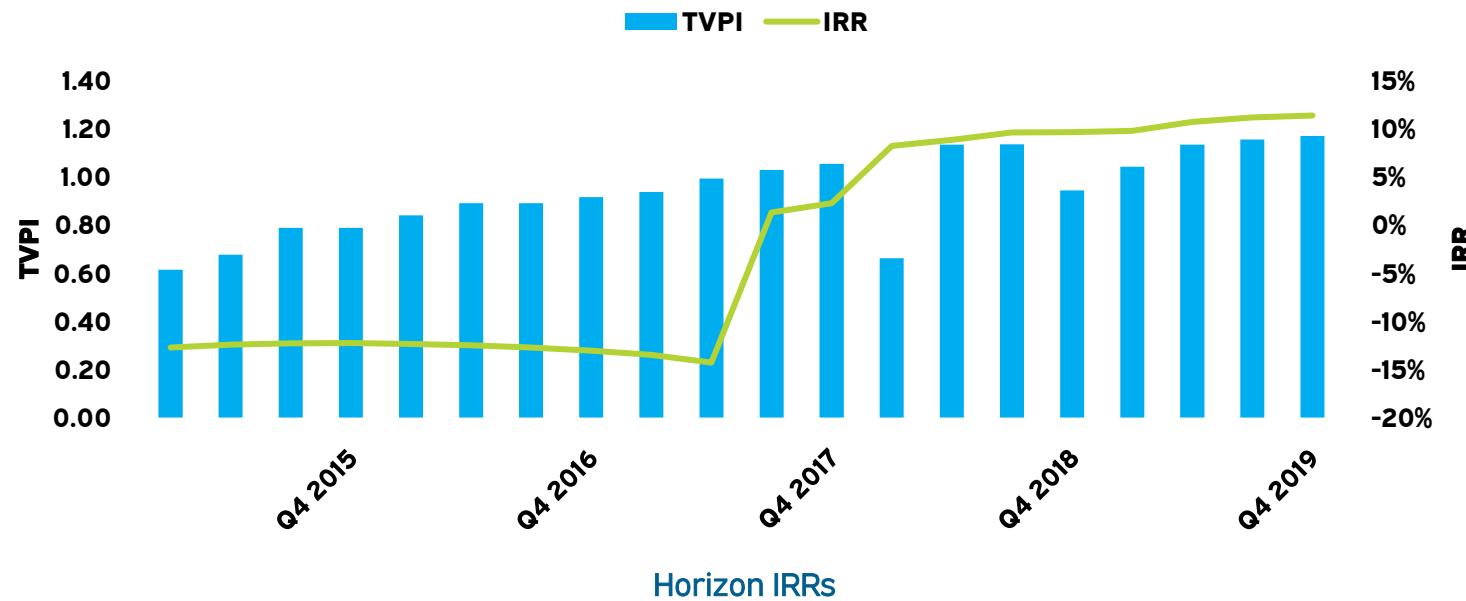
## By Strategy

Group	Number	Committed (\$ MM)	Contributed (\$ MM)	Unfunded (\$ MM)	Distributed (\$ MM)	Remaining Value (\$ MM)	Exposure (\$ MM)	DPI (X)	TVPI (X)	IRR (%)
Direct Lending	2	150.0	131.3	19.6	15.2	135.6	155.2	0.12	1.15	NM
Distressed	2	125.0	105.9	19.1	60.3	65.7	84.8	0.57	1.19	9.8
<b>Total</b>	<b>4</b>	<b>275.0</b>	<b>237.2</b>	<b>38.6</b>	<b>75.5</b>	<b>201.4</b>	<b>240.0</b>	<b>0.32</b>	<b>1.17</b>	<b>11.3</b>

## By Vintage

Group	Number	Committed (\$ MM)	Contributed (\$ MM)	Unfunded (\$ MM)	Distributed (\$ MM)	Remaining Value (\$ MM)	Exposure (\$ MM)	DPI (X)	TVPI (X)	IRR (%)
2011	1	50.0	50.0	0.0	60.3	2.7	2.7	1.21	1.26	8.9
2017	1	75.0	56.3	19.6	7.7	53.9	73.5	0.14	1.10	NM
2018	2	150.0	130.9	19.1	7.6	144.7	163.8	0.06	1.16	NM
<b>Total</b>	<b>4</b>	<b>275.0</b>	<b>237.2</b>	<b>38.6</b>	<b>75.5</b>	<b>201.4</b>	<b>240.0</b>	<b>0.32</b>	<b>1.17</b>	<b>11.3</b>

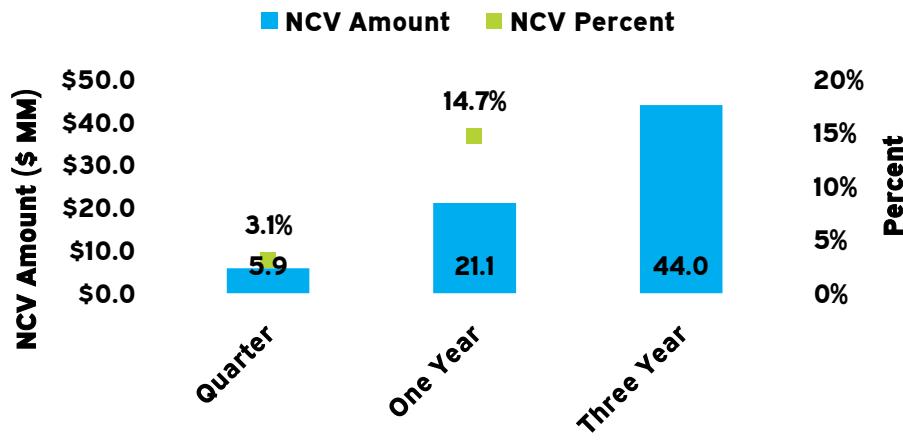
#### Since Inception Performance Over Time



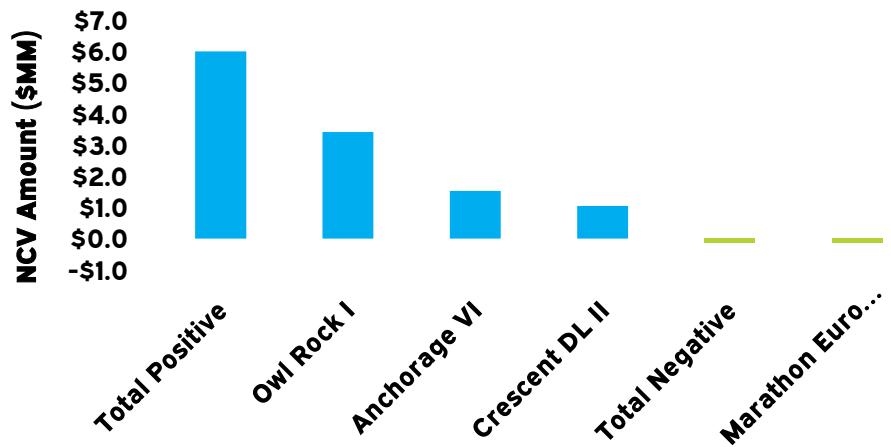
#### Horizon IRRs

	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)	Since Inception (%)
Aggregate Portfolio	14.8	36.4	33.9	11.3	11.3

#### Periodic NCV



#### 1 Quarter Drivers Of NCV

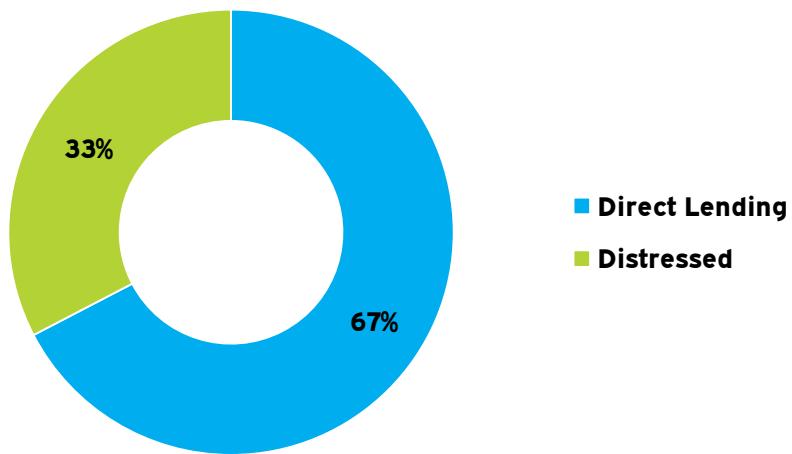


## Fund Performance: Sorted By Vintage And Strategy

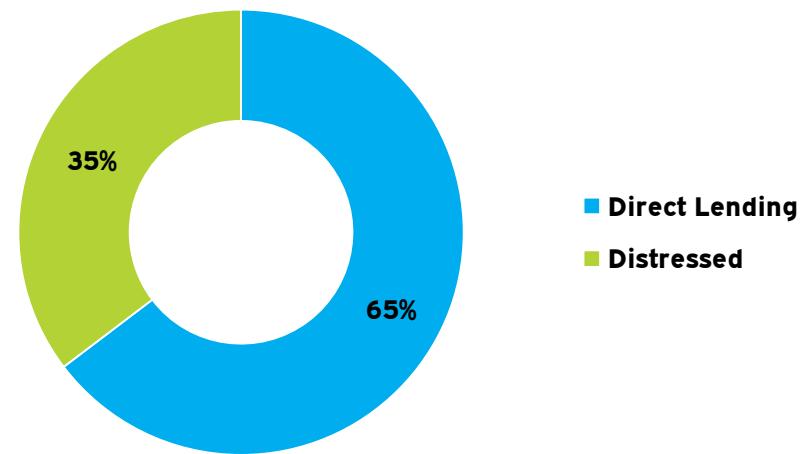
By Investment	Vintage	Strategy	Committed (\$ MM)	Contributed (\$ MM)	Unfunded (\$ MM)	Distributed (\$ MM)	Remaining Value (\$ MM)	TVPI (X)	Peer TVPI (X)	Peer IRR (%)	Peer IRR (%)
Marathon Euro Credit	2011	Distressed	50.0	50.0	0.0	60.3	2.7	1.26	1.32	8.9	8.2
Crescent DL II	2017	Direct Lending	75.0	56.3	19.6	7.7	53.9	1.10	1.15	NM	NM
Owl Rock I	2018	Direct Lending	75.0	75.0	0.0	7.5	81.7	1.19	1.11	NM	NM
Anchorage VI	2018	Distressed	75.0	55.9	19.1	0.0	63.0	1.13	1.11	NM	NM
<b>Total</b>			<b>275.0</b>	<b>237.2</b>	<b>38.6</b>	<b>75.5</b>	<b>201.4</b>	<b>1.17</b>	<b>1.28</b>	<b>11.3</b>	<b>9.5</b>

## By Strategy

Percent of FMV

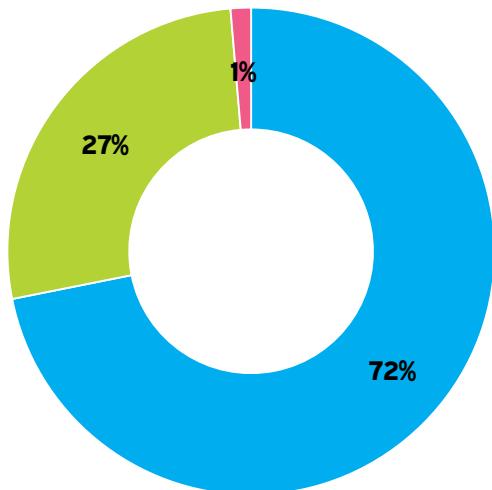


Percent of Exposure

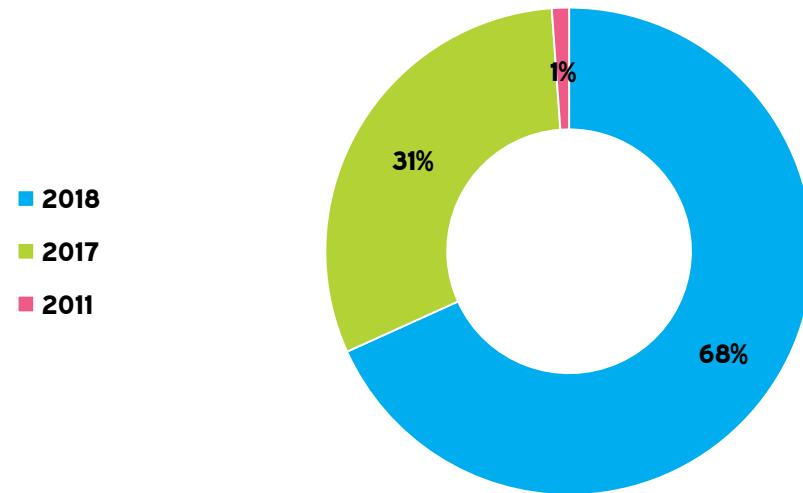


## By Vintage

Percent of FMV

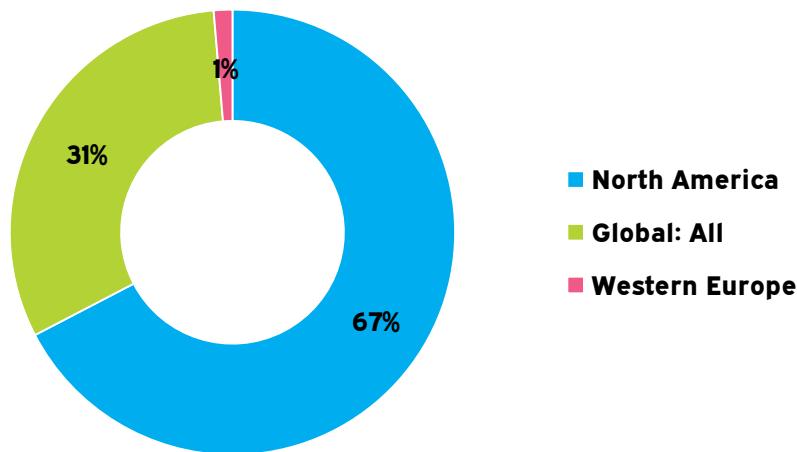


Percent of Exposure

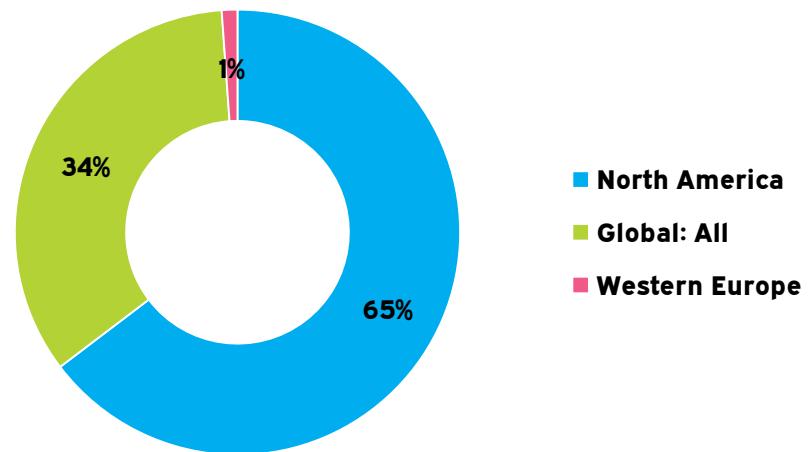


## By Geographic Focus

Percent of FMV



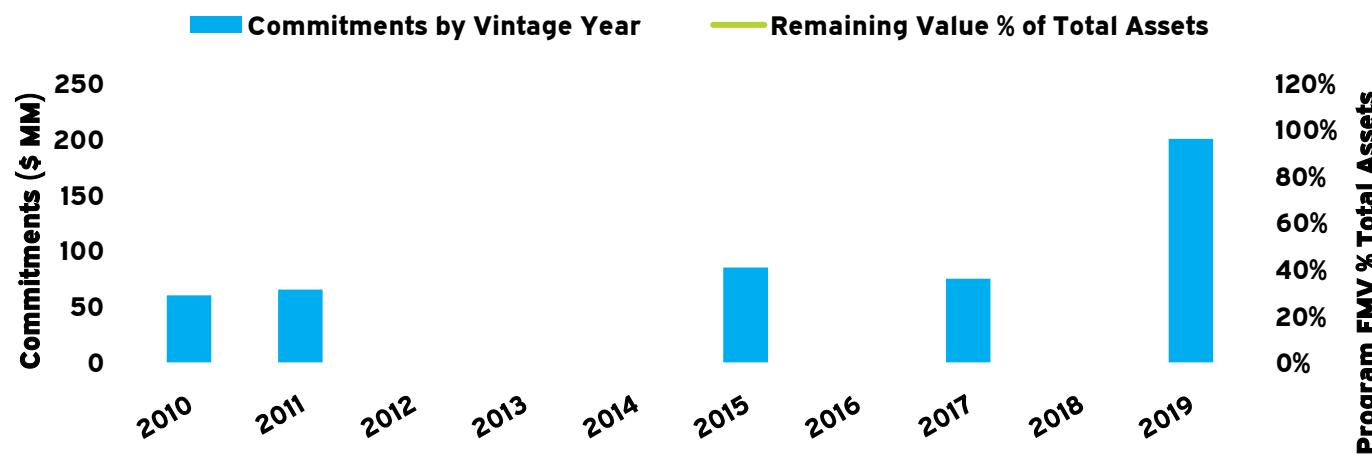
Percent of Exposure



## **AIF Real Assets Portfolio**

#### Introduction

In January 2020, the Connecticut Retirement Plans and Trust Funds reviewed its policies and recommended to remove the Real Assets Program from the Alternative Investment Funds ("AIF") portfolio. The approved target allocation of 4.2% to the Real Assets Program in addition to a maximum exposure limitation of 5.25% of total plan assets remains in existence. The policy was finalized in February 2020.



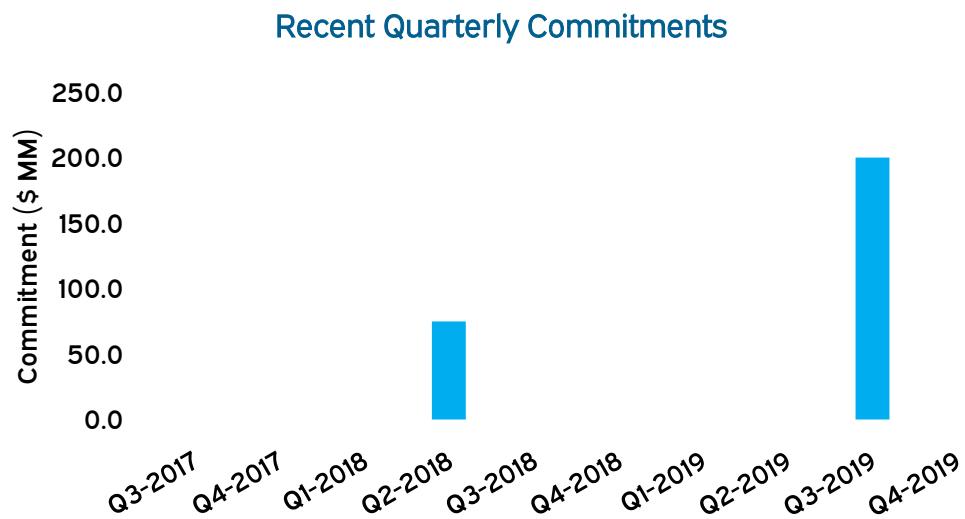
#### Program Status

No. of Investments	5
Committed (\$ MM)	485.0
Contributed (\$ MM)	261.7
Distributed (\$ MM)	148.9
Remaining Value (\$ MM)	152.2

#### Performance Since Inception

	Program	Benchmark
DPI	0.57x	0.35x
TVPI	1.15x	1.15x
IRR	4.9%	5.4%

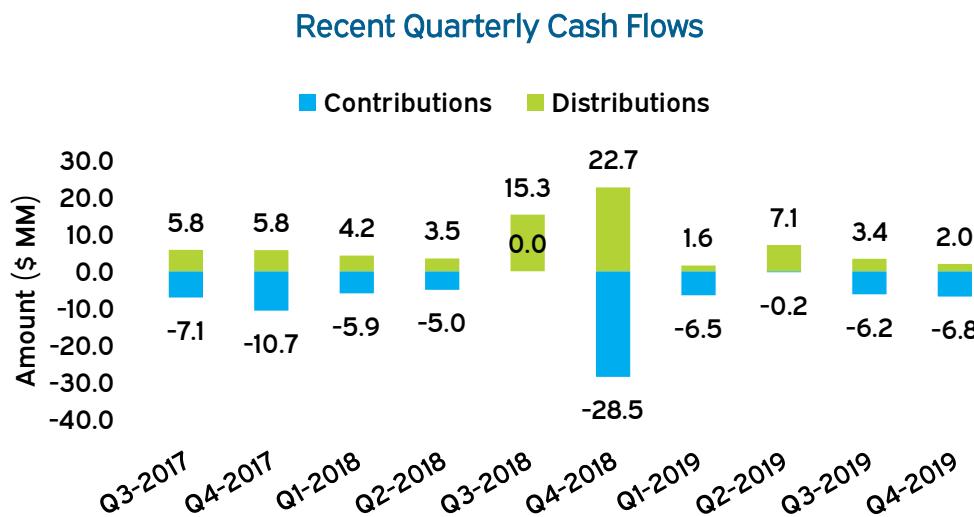
## Commitments

Commitments This Quarter<sup>1</sup>

Fund	Strategy	Region	Amount (MM)
None to report.			

<sup>1</sup> As of December 31, 2019, the Real Assets Program's commitment to IFM has not been funded.

#### Cash Flows



#### Largest Contributions This Quarter

Fund	Vintage	Strategy	Region	Amount (\$MM)
ISQ IS II	2017	Infrastructure	Global: Developed	6.58
EIG XV	2010	Natural Resources	Global: All	0.23

#### Largest Distributions This Quarter

Fund	Vintage	Strategy	Region	Amount (\$MM)
ISQ IS II	2017	Infrastructure	Global: Developed	1.16
EIG XV	2010	Natural Resources	Global: All	0.88

## Significant Events

- ISQ Global Infrastructure Fund II called \$6.6 million during the quarter to fund several follow-on investments in addition to management fees and partnership expenses.
- ISQ Global Infrastructure Fund II distributed \$1.2 million during the quarter primarily from proceeds received in conjunction with various existing portfolio investments.
- EIG Energy Fund XV distributed \$0.9 million during the quarter in proceeds received from AEPB and Cheniere Holdco II.

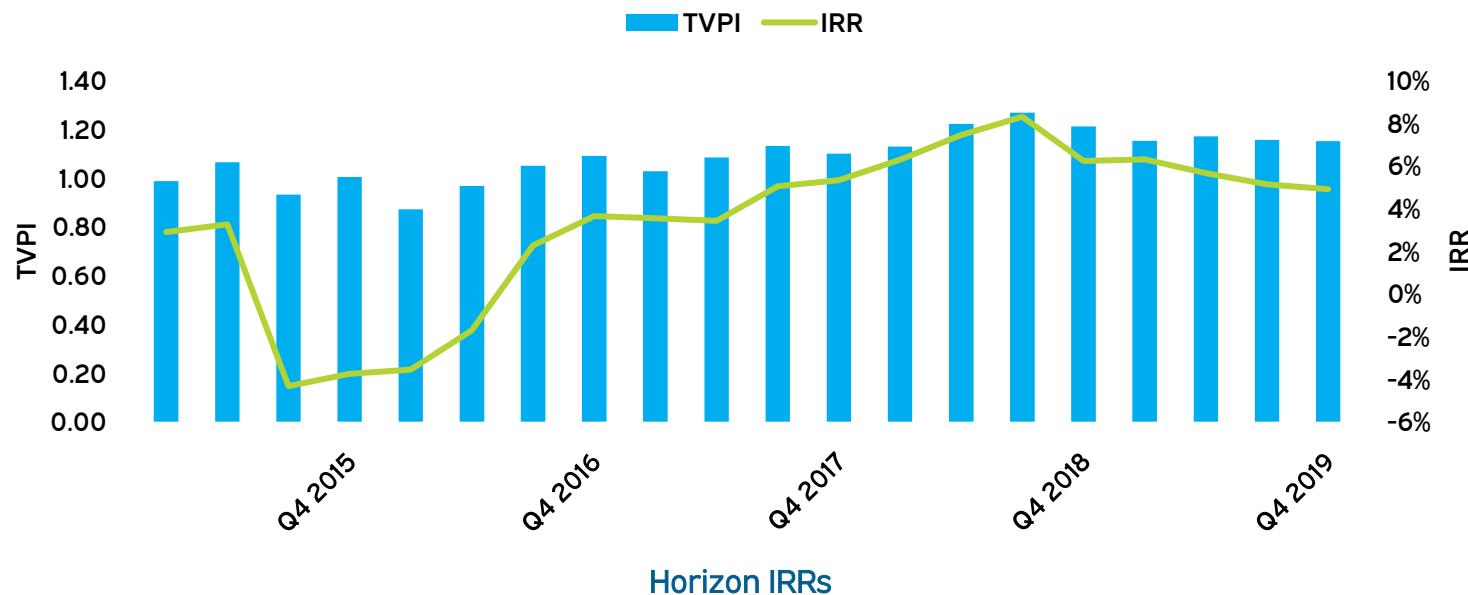
## By Strategy

Group	Number	Committed (\$ MM)	Contributed (\$ MM)	Unfunded (\$ MM)	Distributed (\$ MM)	Remaining Value (\$ MM)	Exposure (\$ MM)	DPI (X)	TVPI (X)	IRR (%)
Infrastructure	4	425.0	198.4	230.8	97.6	131.9	362.7	0.49	1.16	5.9
Natural Resources	1	60.0	63.3	0.0	51.3	20.4	20.4	0.81	1.13	3.1
<b>Total</b>	<b>5</b>	<b>485.0</b>	<b>261.7</b>	<b>230.8</b>	<b>148.9</b>	<b>152.2</b>	<b>383.1</b>	<b>0.57</b>	<b>1.15</b>	<b>4.9</b>

## By Vintage

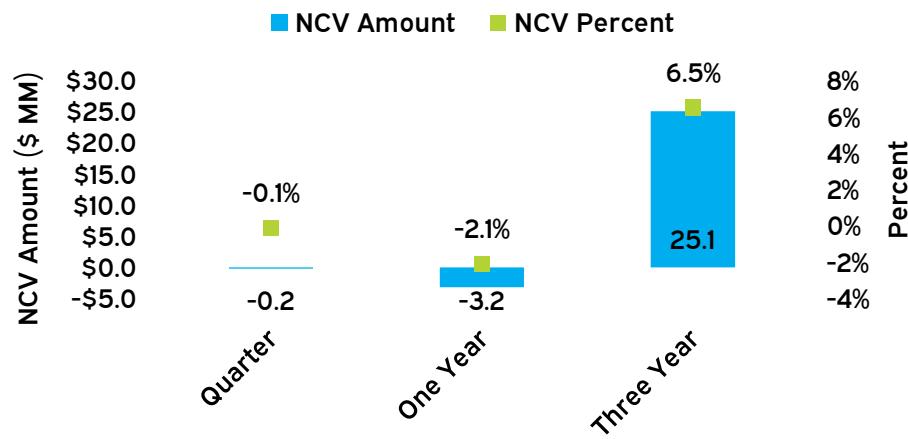
Group	Number	Committed (\$ MM)	Contributed (\$ MM)	Unfunded (\$ MM)	Distributed (\$ MM)	Remaining Value (\$ MM)	Exposure (\$ MM)	DPI (X)	TVPI (X)	IRR (%)
2010	1	60.0	63.3	0.0	51.3	20.4	20.4	0.81	1.13	3.1
2011	1	65.0	65.9	0.0	62.9	22.8	22.8	0.95	1.30	8.0
2015	1	85.0	86.1	0.0	31.2	74.9	74.9	0.36	1.23	7.5
2017	1	75.0	46.4	30.8	3.4	34.3	65.1	0.07	0.81	NM
2019	1	200.0	0.0	200.0	0.0	NM	199.8	0.00	NM	NM
<b>Total</b>	<b>5</b>	<b>485.0</b>	<b>261.7</b>	<b>230.8</b>	<b>148.9</b>	<b>152.2</b>	<b>383.1</b>	<b>0.57</b>	<b>1.15</b>	<b>4.9</b>

## Since Inception Performance Over Time

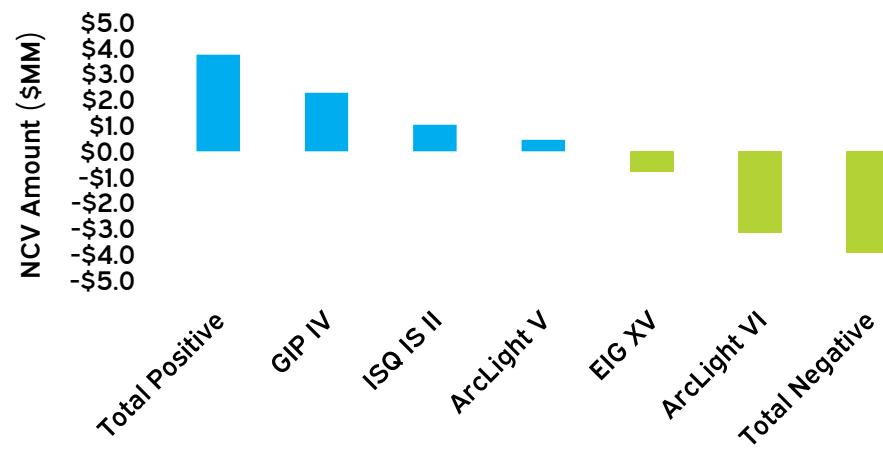


	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)	Since Inception (%)
Aggregate Portfolio	-2.1	6.4	6.3	4.9	4.9

#### Periodic NCV



#### 1 Quarter Drivers Of NCV



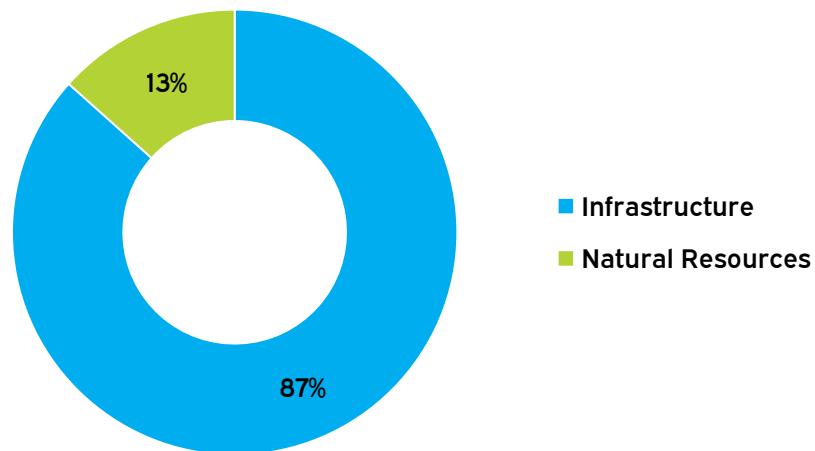
Fund Performance: Sorted By Vintage And Strategy<sup>1</sup>

By Investment	Vintage	Strategy	Committed (\$ MM)	Contributed (\$ MM)	Unfunded (\$ MM)	Distributed (\$ MM)	Remaining Value (\$ MM)	TVPI (X)	Peer TVPI (X)	Peer IRR (%)	Peer IRR (%)
EIG XV	2010	Natural Resources	60.0	63.3	0.0	51.3	20.4	1.13	1.22	3.1	3.5
ArcLight V	2011	Infrastructure	65.0	65.9	0.0	62.9	22.8	1.30	1.00	8.0	0.0
ArcLight VI	2015	Infrastructure	85.0	86.1	0.0	31.2	74.9	1.23	1.22	7.5	8.2
ISQ IS II	2017	Infrastructure	75.0	46.4	30.8	3.4	34.3	0.81	1.10	NM	NM
GIP IV	2019	Infrastructure	200.0	0.0	200.0	0.0	NM	NM	NM	NM	NM
IFM	Open-End	Infrastructure	200.0	0.0	200.0	0.0	0.0	NA	NA	NA	NA
<b>Total</b>			<b>685.0</b>	<b>261.7</b>	<b>430.8</b>	<b>148.9</b>	<b>152.2</b>	<b>1.15</b>	<b>1.15</b>	<b>4.9</b>	<b>5.4</b>

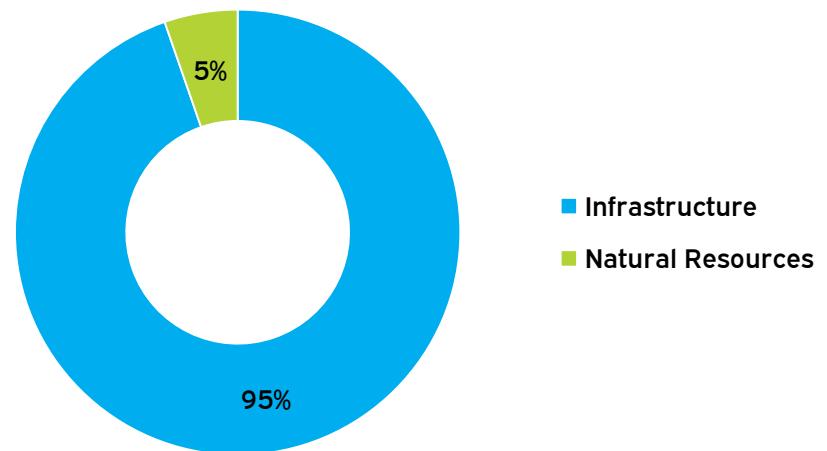
<sup>1</sup> During the quarter, the Real Assets Program made a \$200 million commitment to IFM Global Infrastructure Fund, which has not yet been funded.

## By Strategy

Percent of FMV

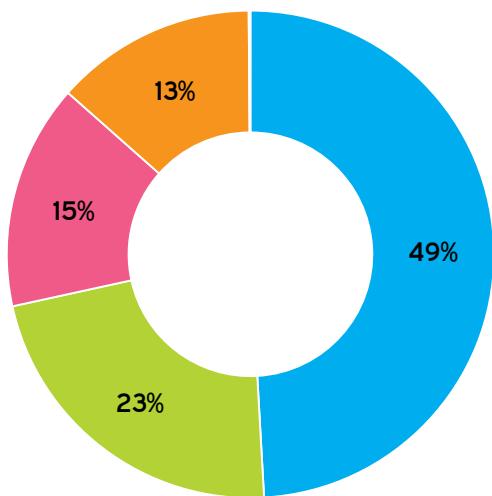


Percent of Exposure

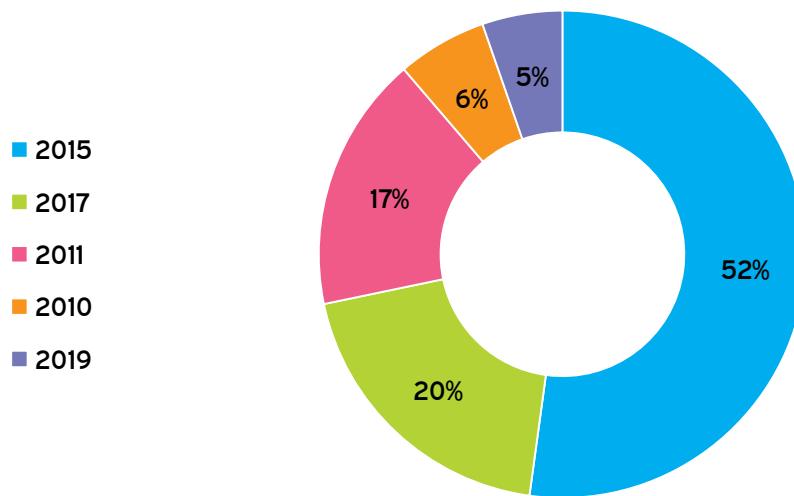


## By Vintage

Percent of FMV



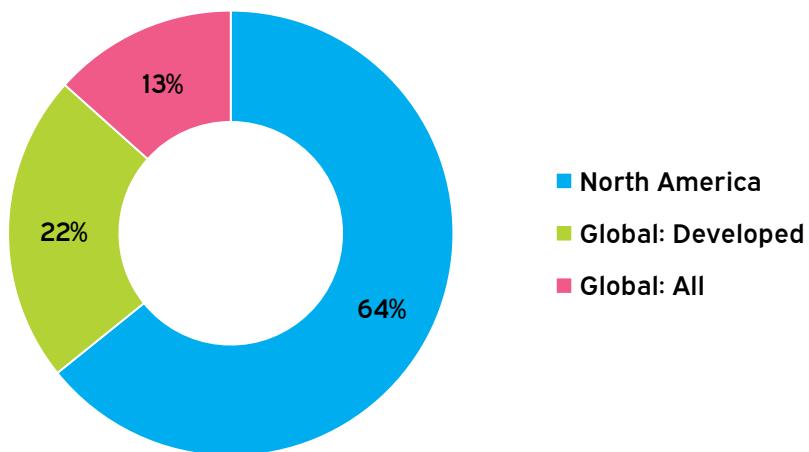
Percent of Exposure



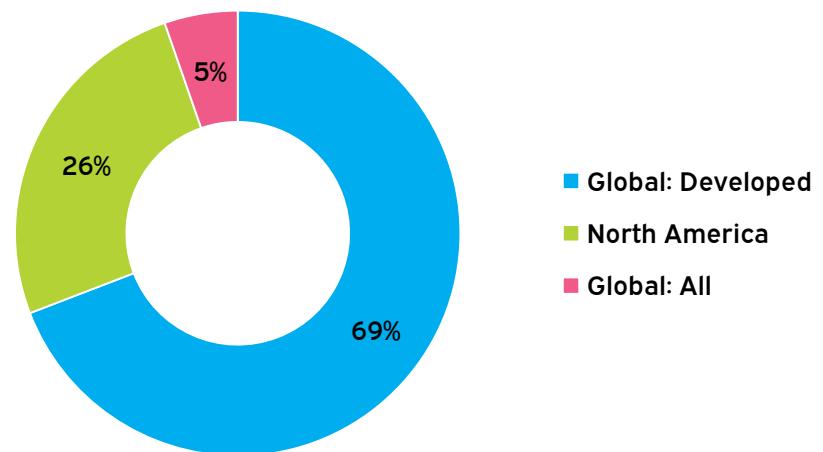
- 2019
- 2015
- 2017
- 2011
- 2010

## By Geographic Focus

Percent of FMV



Percent of Exposure



## Appendices

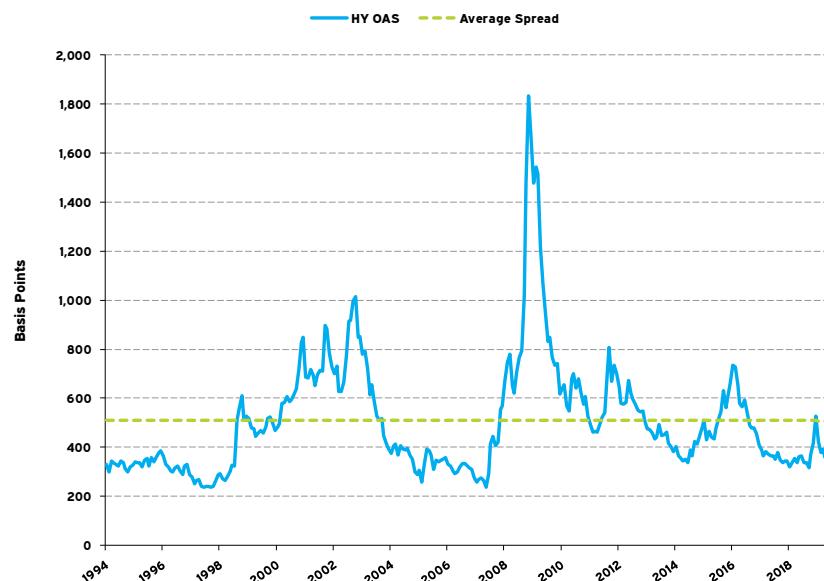
## **AIF Opportunistic and Real Assets Portfolios Supporting Analysis and Notes**

## Private Debt

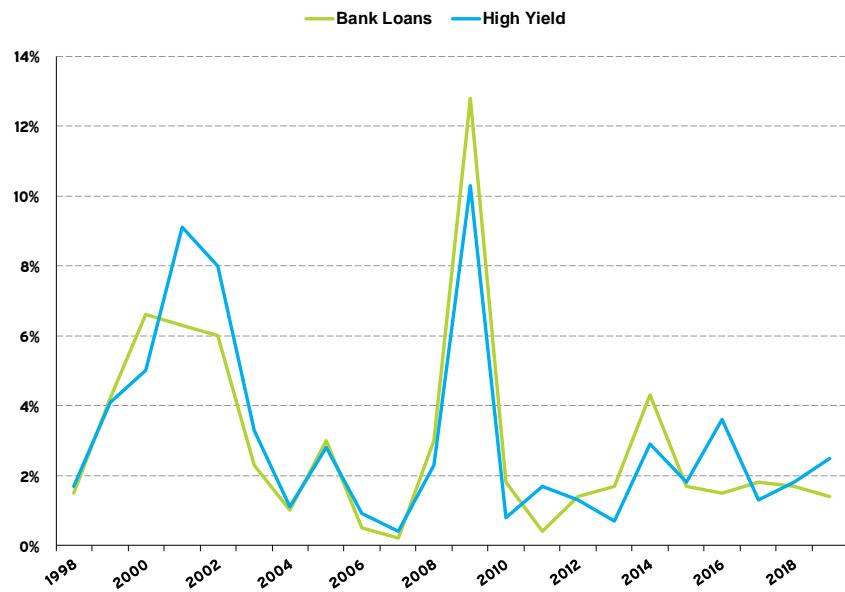
The fourth quarter was a continuation of strong credit markets performance from the first three quarters of the year. While both bank loans and high yield had very strong absolute returns, cracks began to show in the pricing of lower rated debt. Default rates and distressed ratios remained low, but distressed market activity appeared poised to increase as traditional credit investors became more wary of refinancing companies perceived to have more credit risk.

High yield spreads and the bank loan yields continued to fall in the fourth quarter leading to lower forward expected returns in public markets. New issuance yields in the private lending market remained stable though resulting in a larger premium for illiquid credit.

**U.S. Corporate High Yield Spread<sup>1</sup>**



**U.S. Corporate Default Rate<sup>2</sup>**



<sup>1</sup> Source: Barclays Capital

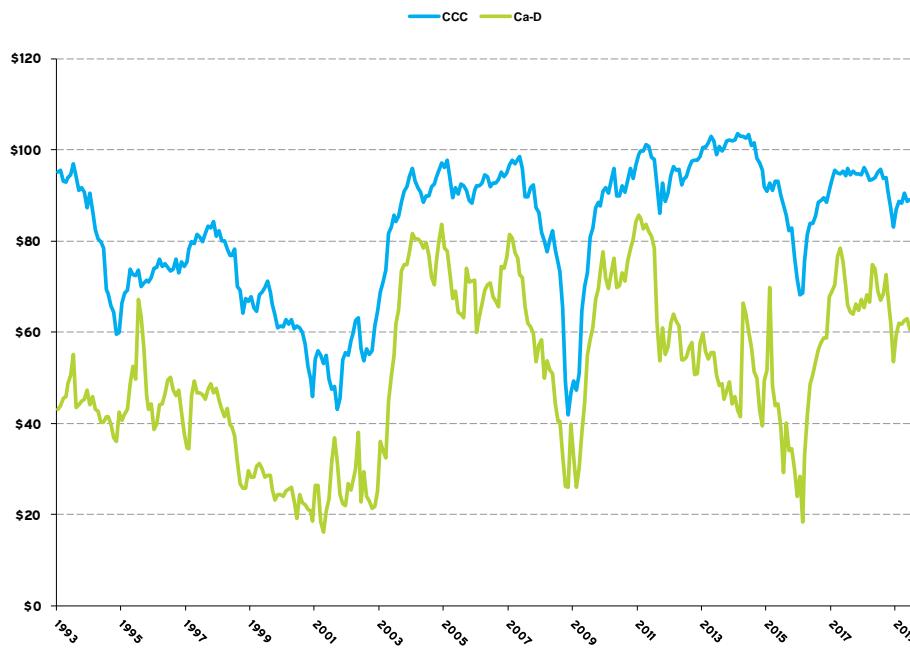
<sup>2</sup> Source: JP Morgan

#### Distressed & Opportunistic Debt

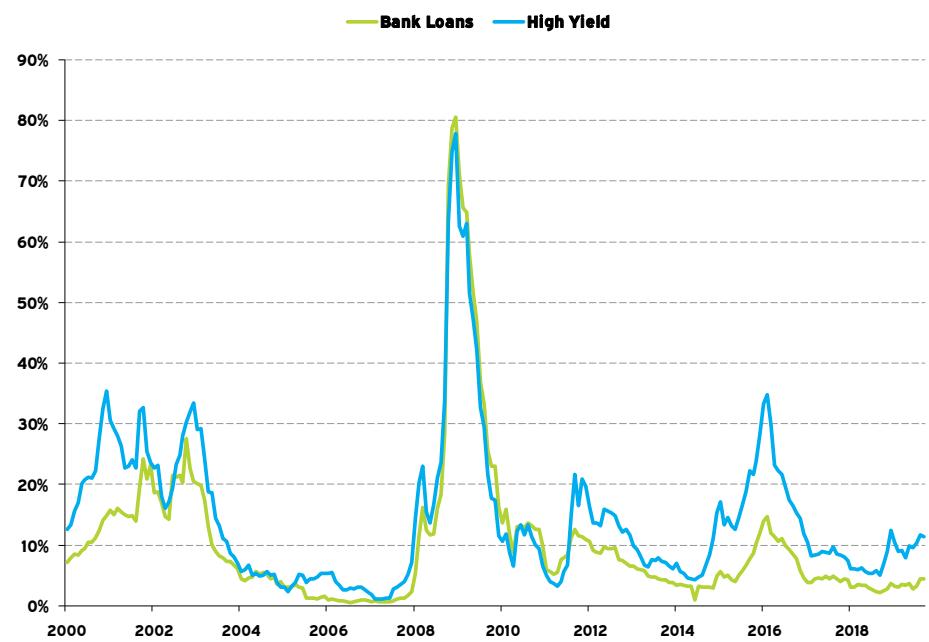
On the surface, the distressed opportunity appeared to be limited as the result of a low default environment. However, evaluating the distressed opportunity by looking at the overall market pricing and performance would not accurately show the opportunity set. In 2019, higher quality debt rallied but lower quality debt struggled to keep up and even exhibited negative performance. This bifurcation was seen in the increased distressed ratio with the backdrop of a market rally.

Recovery values for high yield and bank loans each fell approximately 15% from 2018 levels signaling that patience will be crucial for distressed investors that are targeting restructurings. The average recovery for first lien bank debt fell to 48%, which equaled historical annual lows. Also distressed exchanges increased markedly in 2019 from 2018 levels.

#### Lower Rated Debt Pricing<sup>1</sup>



#### Distressed Ratio<sup>2</sup>



<sup>1</sup> Source: Barclays Capital

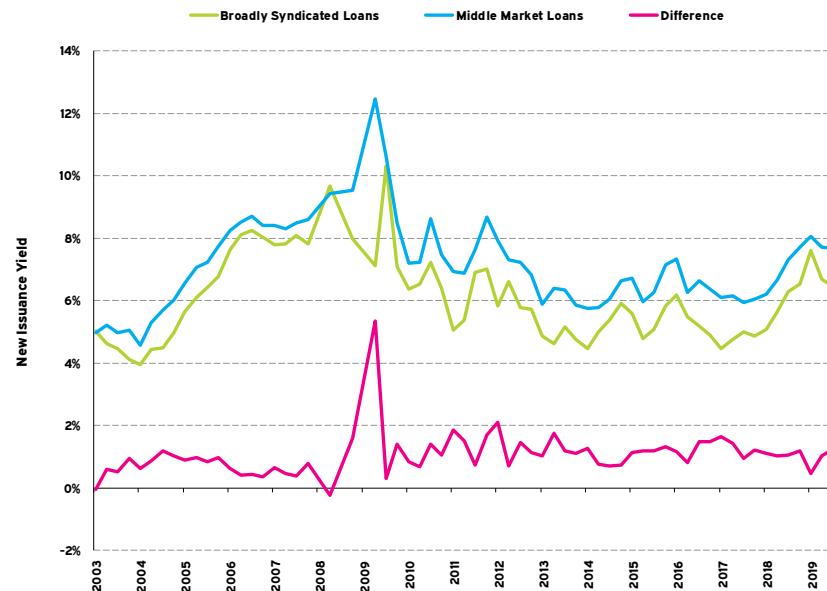
<sup>2</sup> Source: Bank Loans trading below \$80, Credit Suisse; High Yield trading at spread of more than 1,000bps, Deutsche Bank.

#### Private Senior & Subordinated Debt

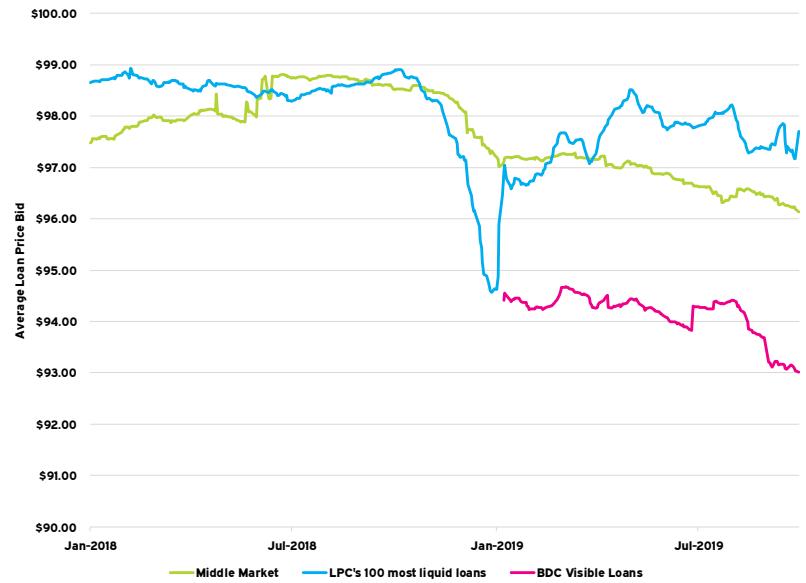
The spread between new issuance yields for direct lending loans and larger liquid loan yields widened during the quarter as liquid market yields compressed and the middle market remained stable. Secondary pricing in the middle market, as evidenced by the LPC middle market and BDC visible yields also declined further pushing up all-in yields. The distressed component of BDC loans steadily increased in 2019 and finished the year just over 10%

Privately issued subordinated debt volumes, measured by second lien and mezzanine activity, were down in the fourth quarter and for the full year in 2019. Unitranche debt continues to be the financing type of choice for private non-bank lending. New issue pricing for unitranche has come down from 2012-2016 levels but remained stable in 2019.

#### Senior Loan New Issue Yields<sup>1</sup>

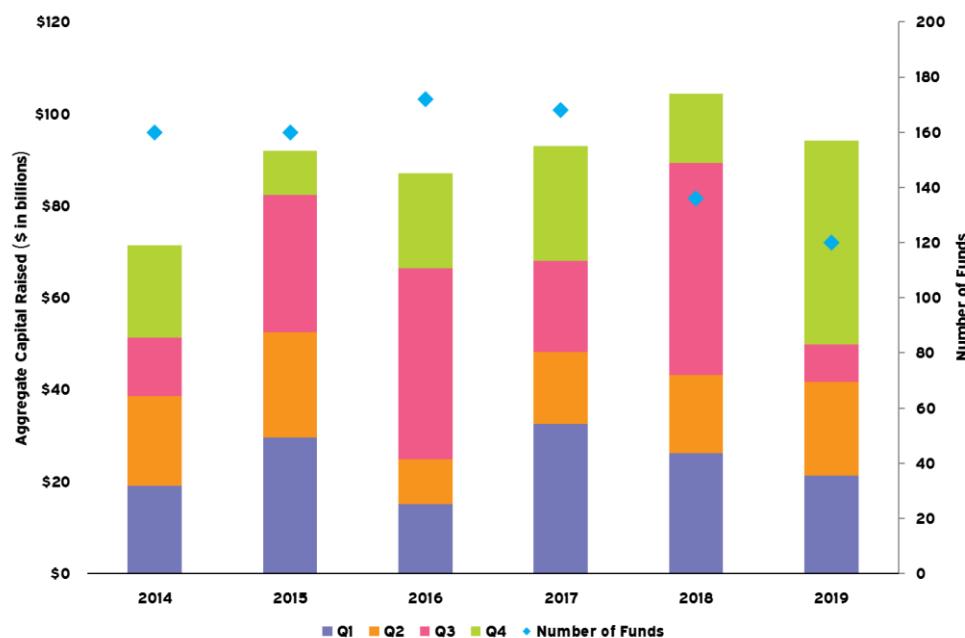


#### Senior Loan Secondary Market Pricing<sup>2</sup>



<sup>1</sup> Source: Refinitiv LPC

<sup>2</sup> Source: Refinitiv LPC

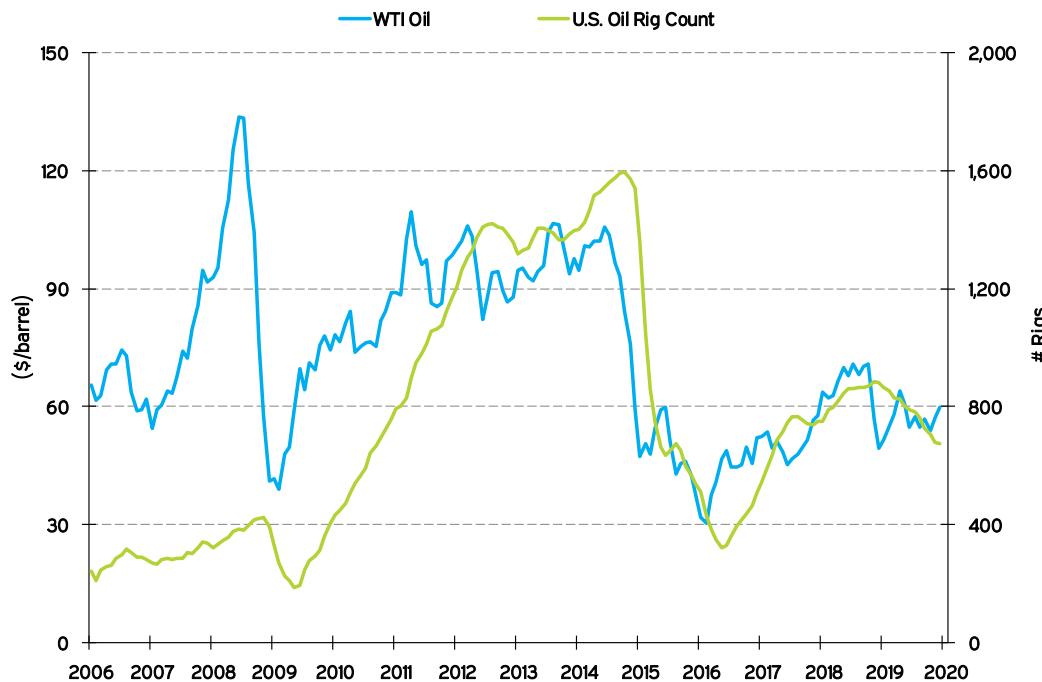
Global Quarterly Unlisted Natural Resource Fundraising<sup>1</sup>

Capital raised during the fourth quarter of 2019 was substantially greater than prior quarters, representing an increase of approximately 130% relative to the total amount raised during the fourth quarter of 2018. There was also a significant increase in the number of vehicles raised during the quarter with 41 funds reaching final close. The average size of vehicles raised during the quarter was \$1.1 billion, exceeding the 2019 quarterly average of \$800 million. As of December 31, 2019, Preqin reported a total of 277 unlisted natural resources funds with a combined fundraising target of approximately \$139 billion. The majority of natural resources managers fundraising during the fourth quarter were focused on North America, accounting for approximately 45% of cumulative targeted capitalization in the market.

<sup>1</sup> Source: Preqin Private Capital Fundraising Update, Q4 2019.

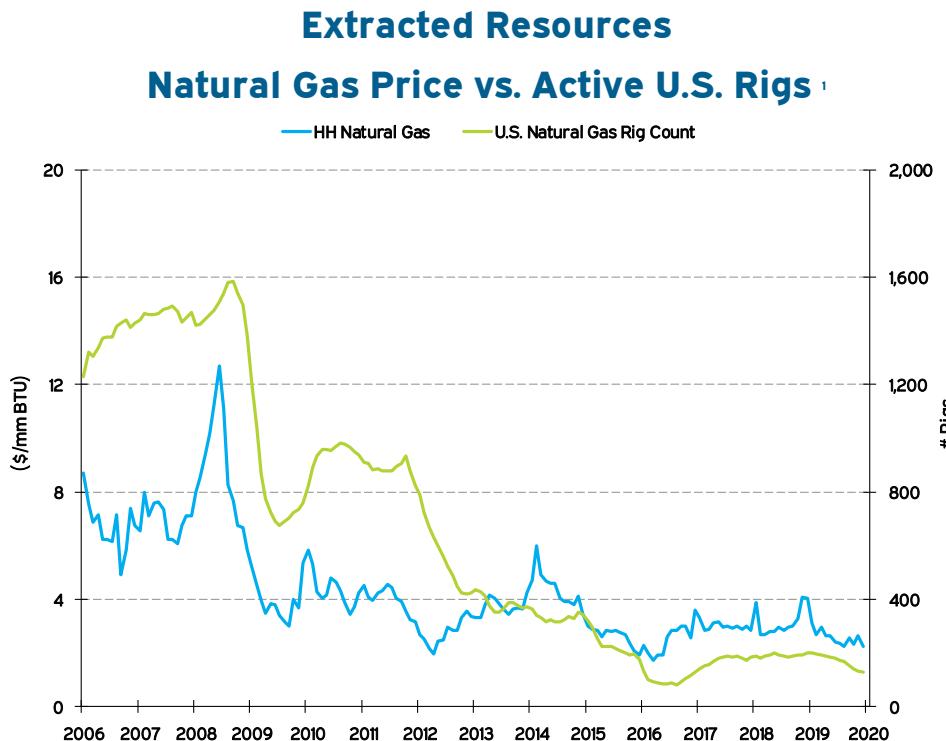
## Extracted Resources

## Oil Price vs. Active U.S. Rigs



China and the U.S. agree, in principal, for the framework of a trade pact raising the prospect of increased global activity by the two largest economies. Further, the U.S. launches airstrikes in Iraq that kills an Iranian General. West Texas Intermediate ("WTI") and Brent oil prices increased by 5% to \$60 and 7% to \$67 per barrel, respectively, during the fourth quarter. During the fourth quarter, the U.S. produced over 12.2 million barrels of oil equivalent per day. The U.S. oil rig count fell by 53 over the quarter, bringing total rigs to 673. U.S. gasoline prices for regular blend decreased by 2% to \$2.74 during the fourth quarter, representing a 6% increase from one year prior.

<sup>1</sup> Source: EIA and Baker Hughes.



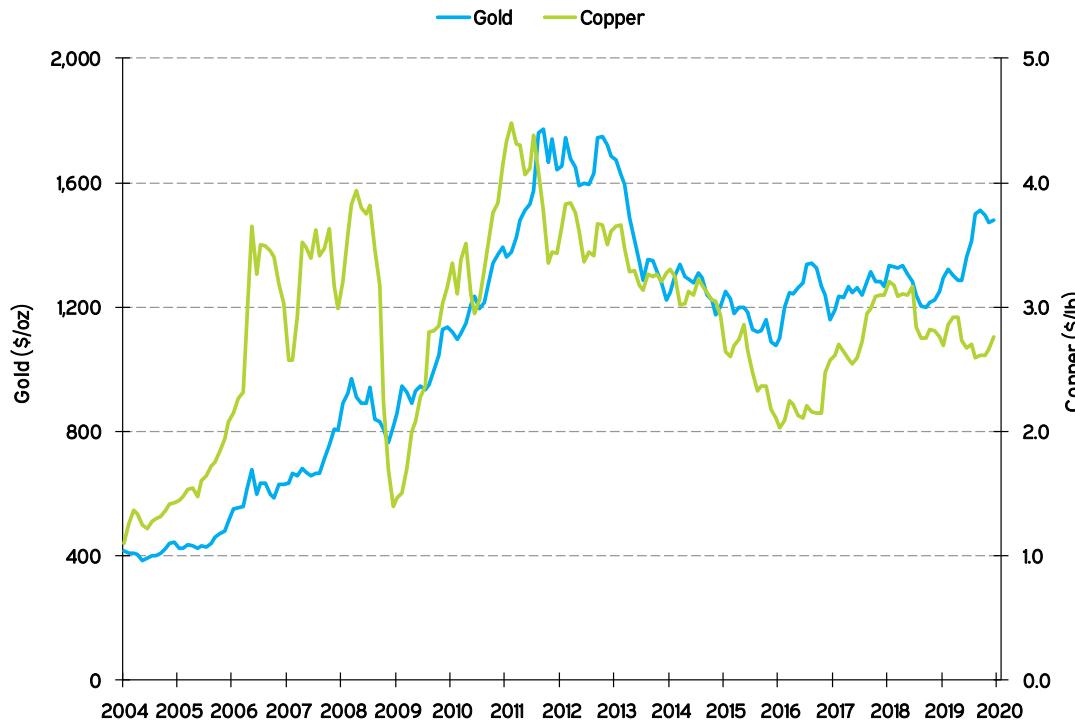
Henry Hub natural gas spot prices ended the quarter at approximately \$2.22/MM BTU, representing a 13% decrease relative to the prior quarter. A meaningful basis differential continues to exist between Henry Hub, the primary U.S. benchmark, and other natural gas markets. Continued build out of midstream infrastructure is expected to narrow the spread over time. Despite a reduction in rig count of 27 to 128 over the quarter, U.S. natural gas production continued to grow with daily production reaching more than 103 billion cubic feet from operational improvements and increasing associated gas production from oil wells.

During the quarter, UPS announced plans to purchase 6,000 natural gas trucks in two years. Additionally, India announced \$60 billion of gas infrastructure investment to include pipelines and LNG import terminals.

<sup>1</sup> Source: EIA and Baker Hughes.

## Extracted Resources

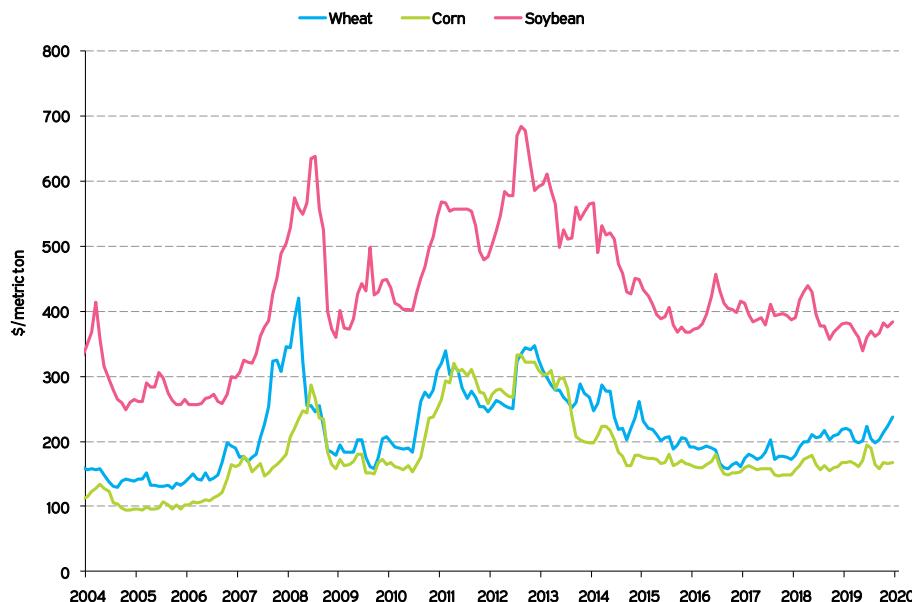
## Metals Prices



Significant geopolitical volatility extended through the fourth quarter in connection with ongoing global trade wars, prospects of a trade war truce, declining bond yields, and economic uncertainty impacted global demand for certain base, industrial, and other metals. Copper prices increased by 6% to \$2.76 per ounce while gold prices fell by 2% to \$1,479 per ounce during the fourth quarter. Relative to one year prior, copper prices have remained unchanged while gold prices experienced an increase of 18%.

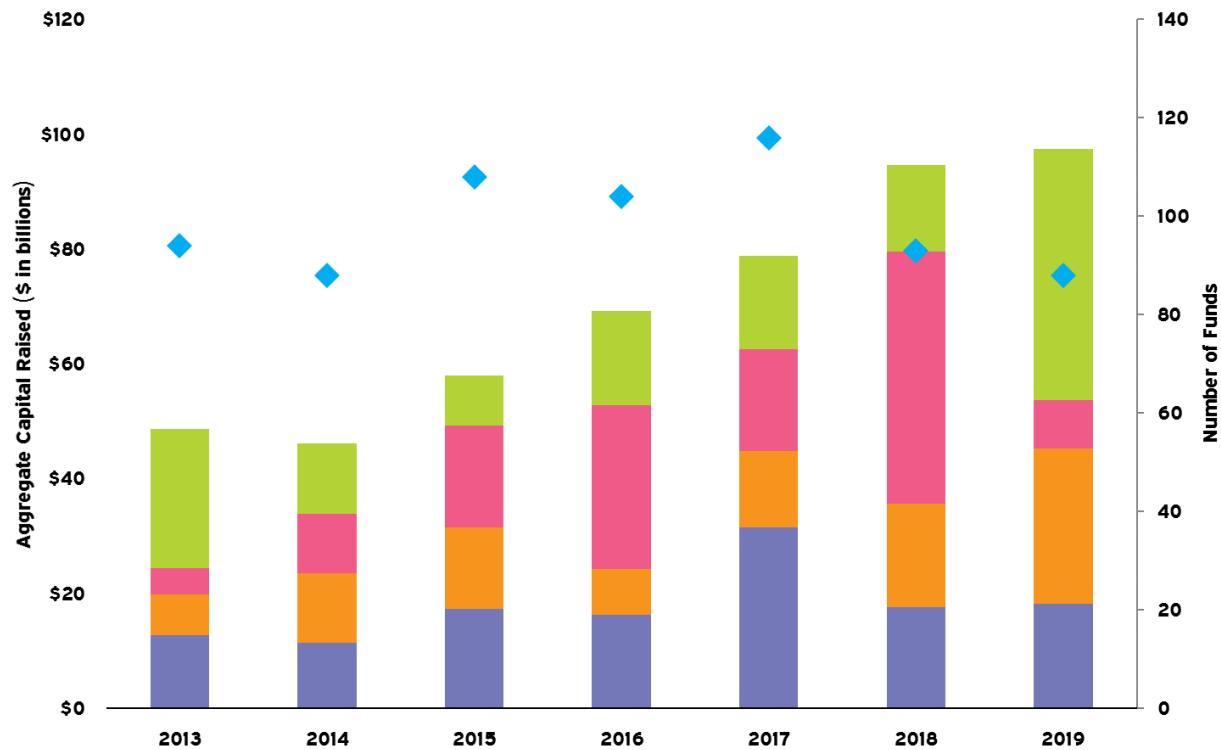
<sup>1</sup> Source: World Bank

## Harvested Resources

Wheat, Corn, & Soybean<sup>1</sup>

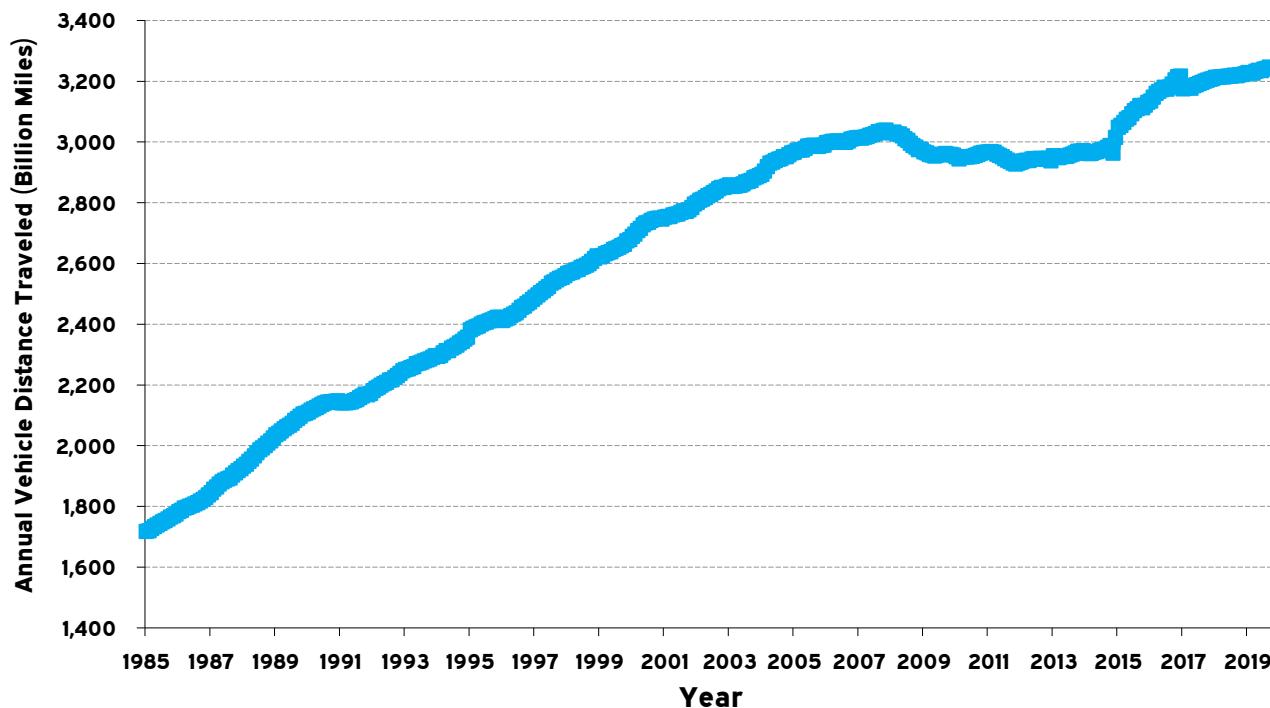
While ongoing global trade disputes have been a primary source of volatility within U.S. agricultural markets, progress has been made which may increase product demand. A potential trade agreement between the U.S. and China may lead to \$50 billion of agriculture exports from the U.S. over time. Further, the U.S. also reached a trade agreement with Japan which lowers or eliminates tariffs on U.S. agricultural products. Weather had a material impact to global food production: excessive rainfall across the U.S. Midwest and Southeast regions led to reduced or delayed crop plantings; additionally, massive wildfires across Australia disrupted food supply chains across the region. During the quarter, wheat and corn prices increased by 18% and 6%, respectively, while soybean prices increased by 5%. During the fourth quarter, the NCREIF Farmland index experienced a 2.3% increase primarily driven by income gains of 2.2%. The NCREIF Timberland index remained unchanged over the quarter as income gains of 0.6% were offset by depreciation.

<sup>1</sup> Source: World Bank

Global Quarterly Unlisted Infrastructure Fundraising<sup>1</sup>

Capital raised in the fourth quarter of 2019 was the largest quarter fundraise since third quarter 2018 and brought the 2019 total to nearly \$100 billion. In the fourth quarter, the average fund size was over \$2.5 billion above the 2019 average of \$1.0 billion. As of December 31, 2019, a total of 253 unlisted infrastructure funds were in market, according to Preqin, with a combined fundraising target of approximately \$200 billion.

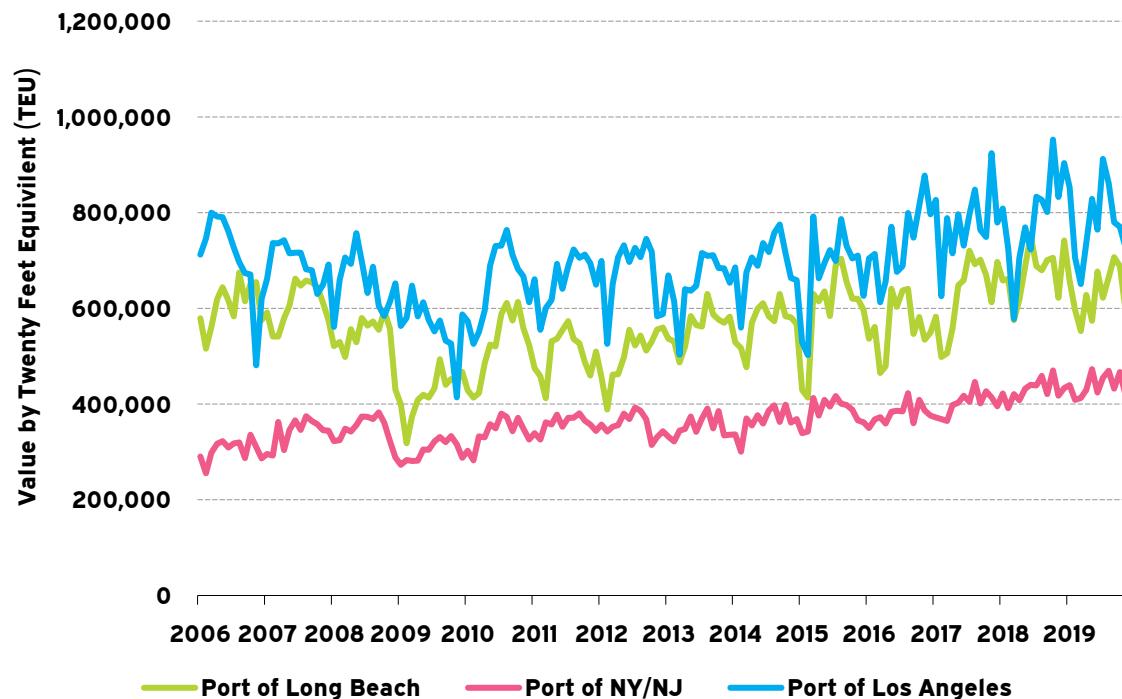
<sup>1</sup> Source: Preqin 2020 Global Infrastructure Report.

**Moving 12-month Total on All U.S. Roads<sup>1</sup>**

Through November 2018, the fourth quarter was on pace for travel on U.S. roads totaling approximately 820 billion miles. This represented an increase of 1.1% over the same period in 2019.

Up to this point in 2019, the average U.S. price of a gallon of gas went up to a monthly average of \$2.69 per gallon, with a peak of \$2.95. This compared to \$2.82 and \$2.99 seen in 2018. According to INRIX, Boston, Washington, D.C., and Chicago rank as the top three cities in the U.S. in which drivers spend the most hours in traffic.

<sup>1</sup> Source: U.S. Department of Transportation, Federal Highway Administration: Office of Highway Policy Information.

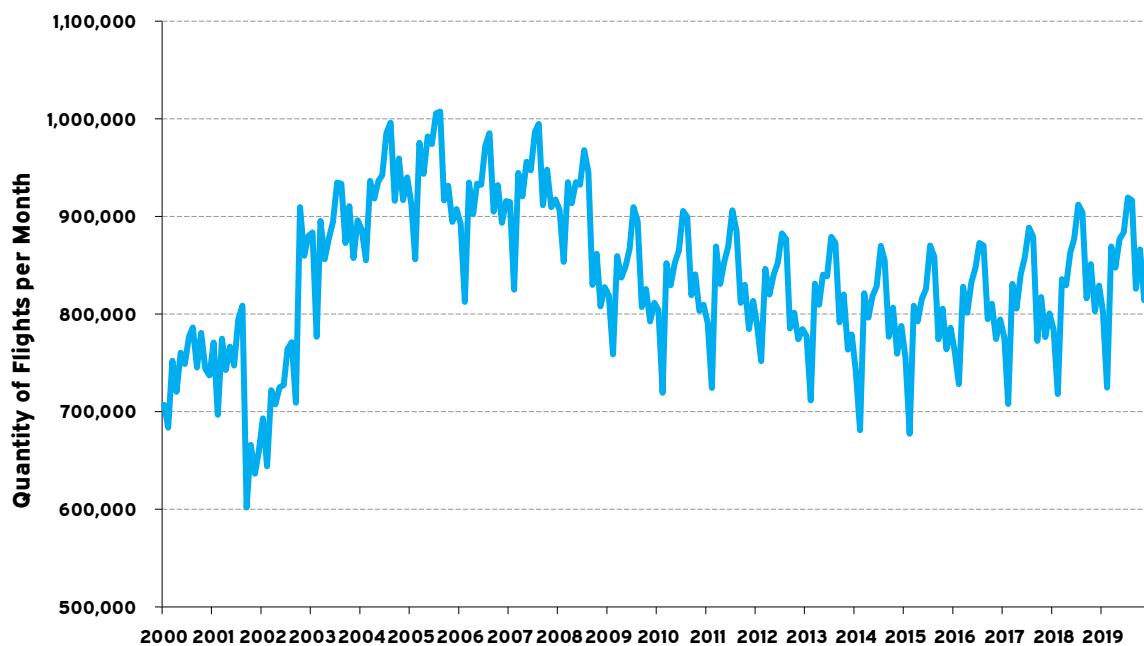
U.S. Port Activity – Container Trade in TEUs<sup>1</sup>

The chart represents the top three U.S. ports by container volume, as measured by twenty-foot equivalent units (TEU). Activity at the three ports provides a high-level representation of the volume of imports received into the U.S. more broadly.

During the fourth quarter of 2019, volumes at the three ports decreased by 591,412 units relative to the same period in 2018. On a year-over-year basis, the combined port volumes decreased by 501,578 TEU, or 2.2%, over the prior 12 month period. The Port of Long Beach recorded a decrease of 5.7% (458,992 TEU), the Port of NY/NJ reported an increase of 1.5% (78,525 TEU) and the Port of Los Angeles recorded a decrease of 1.3% (121,111 TEU) from the prior 12 months.

<sup>1</sup> Source: [www.polb.com](http://www.polb.com), [www.panynj.gov](http://www.panynj.gov), and [www.portoflosangeles.org](http://www.portoflosangeles.org)

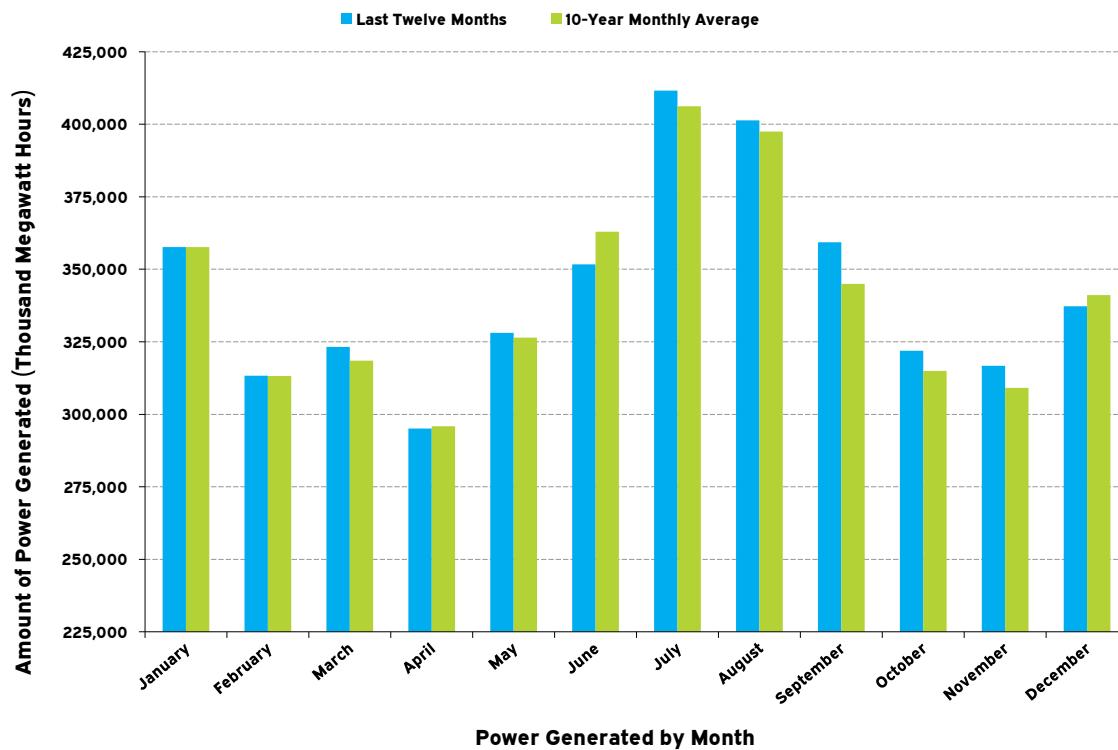
### Total U.S. Domestic and International Flights<sup>1</sup>



The chart above represents all U.S. domestic and international flights, excluding foreign point-to-point flights by month. Air traffic is cyclical with peaks in the summer months and declines in the winter months.

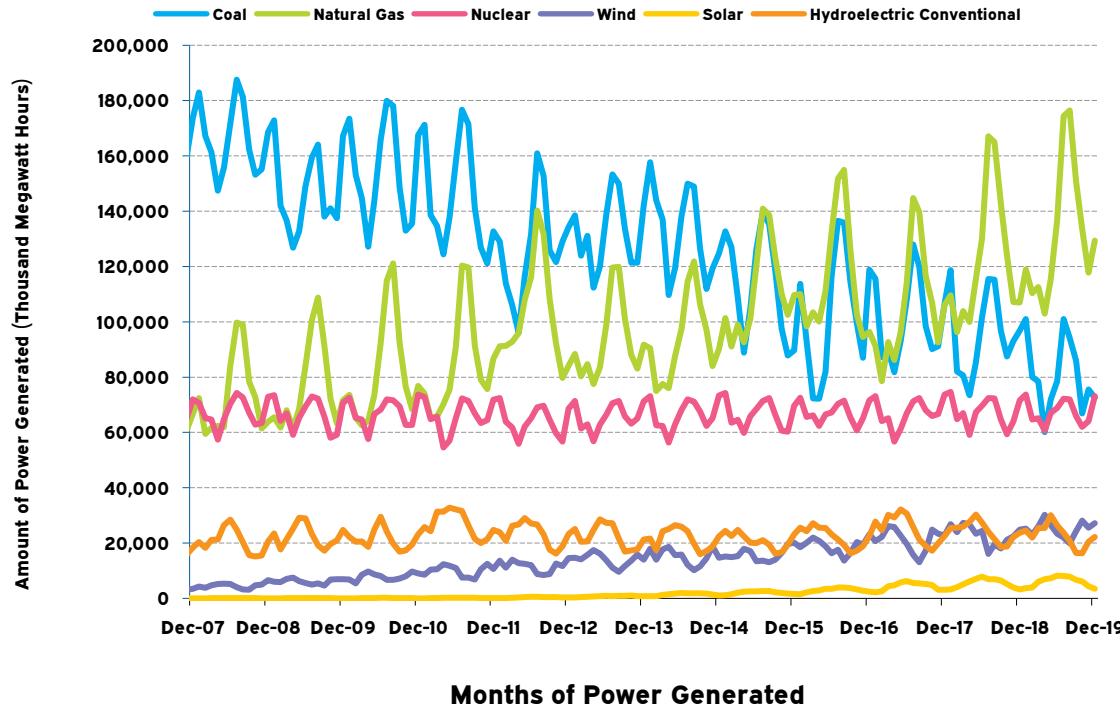
There were nearly 50,000 more flights during the fourth quarter of 2019, representing a 2.0% increase compared to the same period in 2018. Air traffic activity also increased by 1.8% for the 12 months ending December 31, 2019 over the previous period. In addition to the number of flights during the fourth quarter increasing year-over-year, the total number of passengers travelling on U.S. and international airlines increased by 3.9% from 2018 to 2019, which indicates higher capacity factors among airlines compared to the prior period.

<sup>1</sup> Source: Bureau of Transportation Statistics: Flights, All U.S., and Foreign Carriers.

Total U.S. Power Generation<sup>1</sup>

The graph above represents the total net generation for the past 12 months compared to the 10-year average for each month. Over the past year, power generation exceeded the 10-year average in 10 out of the 12 months. Net energy generation in the U.S. decreased by 1.0% during the fourth quarter, compared to the same period in 2018. For the 12 months ended December 31, 2019, net energy generation decreased by 1.4% over the previous 12 months.

<sup>1</sup> Source: U.S. Energy Information Administration: Electric Power Monthly, December 2019.

U.S. Power Generation by Source<sup>1</sup>

When comparing individual generation sources in the U.S., natural gas, nuclear, wind, and solar increased 12.6%, 2.2%, 18.3%, and 13.2% respectively in the fourth quarter of 2019 as compared to the same period in the previous year. Generation from coal and hydroelectric conventional dropped by 22.5% and 8.8% respectively, during the same period. Wind and utility scale solar continue to make up a small portion of total net energy generation in the U.S., accounting for only 8.3% and 1.4% of energy generation in the fourth quarter, while coal, natural gas, and nuclear accounted for 22.0%, 39.0%, and 20.4%, respectively. However, the growth of wind and solar as sources of energy generation continues to increase at a faster rate than coal and natural gas, especially over the last couple of years.

<sup>1</sup> Source: U.S. Energy Information Administration: Electric Power Monthly, December 2019.

Below are details on specific terminology and calculation methodologies used throughout this report:

<b>Committed</b>	The original commitment amount made to a given fund. Some funds may be denominated in non-USD currencies, and such commitment amounts represent the sum of fund contributions translated to USD at their daily conversion rates plus the unfunded balance translated at the rate as of the date of this report.
<b>Contributed</b>	The amount of capital called by a fund manager against the commitment amount. Contributions may be used for new or follow-on investments, fees, and expenses, as outlined in each fund's limited partnership agreement. Some capital distributions from funds may reduce contributed capital balances. Some funds may be denominated in non-USD currencies, and such aggregate contributions represent the sum of each fund contribution translated to USD at its daily conversion rate.
<b>Distributed</b>	The amount of capital returned from a fund manager for returns of invested capital, profits, interest, and other investment related income. Some distributions may be subject to re-investment, as outlined in each fund's limited partnership agreement. Some funds may be denominated in non-USD currencies, and such aggregate distributions represent the sum of each fund distribution translated to USD at its daily conversion rate.
<b>DPI</b>	Acronym for "Distributed-to-Paid-In", which is a performance measurement for Private Market investments. The performance calculation equals Distributed divided by Contributed. DPIs for funds and groupings of funds are net of all fund fees and expenses as reported to by fund managers to Meketa. Program-level DPIs are net of both fund fees and expenses and fees paid to Meketa attributable to the Program.
<b>Exposure</b>	Represents the sum of the investor's Unfunded and Remaining Value.
<b>IRR</b>	Acronym for "Internal Rate of Return", which is a performance measurement for Private Market investments. IRRs are calculated by Meketa based on daily cash flows and Remaining Values as of the date of this report. IRRs for funds and groupings of funds are net of all fund fees and expenses as reported to by fund managers to Meketa. Program-level IRRs are net of both fund fees and expenses and fees paid to Meketa attributable to the Program.
<b>NCV</b>	Acronym for "Net Change in Value", which is a performance measurement for Private Market investments. The performance calculation equals the appreciation or depreciation over a time period neutralized for the impact of cash flows that occurred during the time period.

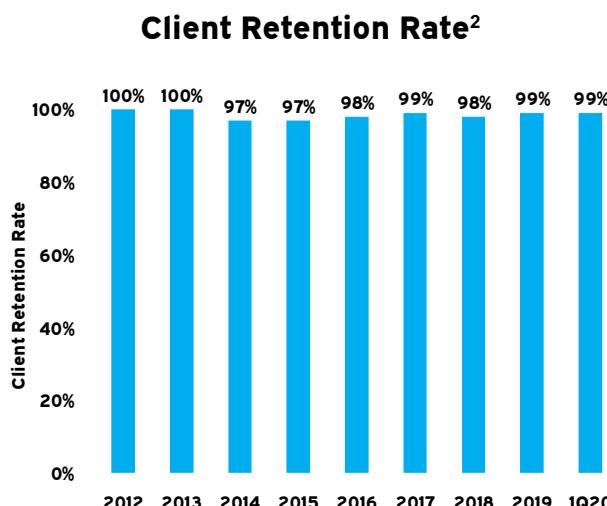
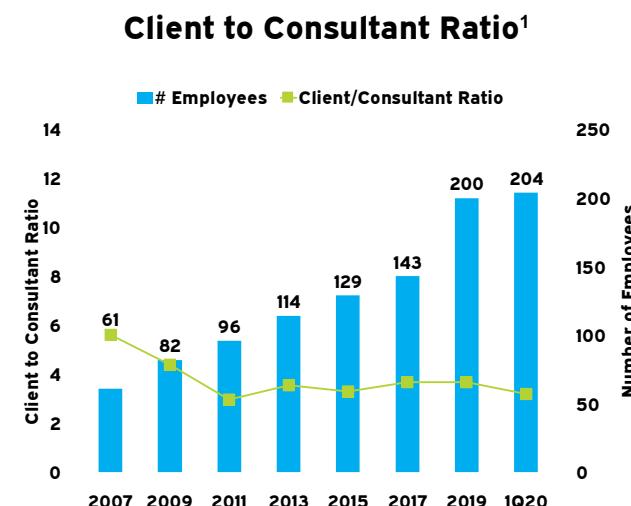
NM	Acronym for "Not Meaningful", which indicates that a performance calculation is based on data over too short a timeframe to yet be meaningful or not yet possible due to inadequate data. Meketa begins reporting IRR calculations for investments once they have reached more than two years since first capital call. NM is also used within this report in uncommon cases where the manager has reported a negative Remaining Value for an investment.
Peer Benchmark	<p>The performance for a set of comparable private market funds. The peer benchmarks used in this report are provided by Thomson ONE, based on data from Cambridge Associates as of the date of this report. Program-level peer benchmark performance represents the pooled return for a set of funds of corresponding vintages and strategies across all regions globally. Fund-level peer benchmark performance represents the median return for a set of funds of the same vintage and the program's set of corresponding strategies across all regions globally. Peer benchmarks that include less than five funds display performance as "NM". Meketa utilizes the following Thomson ONE strategies for peer benchmarks:</p> <p>Infrastructure: Infrastructure</p> <p>Natural Resources: Private Equity Energy, Upstream Energy &amp; Royalties, and Timber</p> <p>Private Debt: Subordinated Capital, Credit Opportunities, and Control-Oriented Distressed</p> <p>Private Equity: Venture Capital, Growth Equity, Buyout, Subordinated Capital, Credit Opportunities, and Control-Oriented Distressed</p> <p>Real Assets (excluding Real Estate): Infrastructure, Private Equity Energy, Upstream Energy &amp; Royalties, and Timber</p> <p>Real Assets (including Real Estate): Infrastructure, Private Equity Energy, Upstream Energy &amp; Royalties, Timber, and Real Estate</p> <p>Real Estate: Real Estate</p>
Remaining Value	The investor's value as reported by a fund manager on the investor's capital account statement. All investor values in this report are as of the date of this report, unless otherwise noted. Some funds may be denominated in non-USD currencies, and such remaining values represent the fund's local currency value translated to USD at the rate as of the date of this report.
TVPI	Acronym for "Total Value-to-Paid-In", which is a performance measurement for Private Market investments. The performance calculations represents Distributed plus Remaining Value, then divided by Contributed. TVPIs for funds and groupings of funds are net of all fund fees and expenses as reported to by fund managers to Meketa. Program-level TVPIs are net of both fund fees and expenses and fees paid to Meketa attributable to the Program.

**Unfunded**

The remaining balance of capital that a fund manager has yet to call against a commitment amount. Meketa updates unfunded balances for funds to reflect all information provided by fund managers provided in their cash flow notices. Some funds may be denominated in non-USD currencies, and such unfunded balances represent the fund's local currency unfunded balance translated to USD at the rate as of the date of this report.

**Meketa Investment Group**  
**Corporate Update**

- Staff of 204, including 138 investment professionals and 43 CFA Charterholders
- 214 clients, with over 300 funds throughout the United States
- Significant investment in staff and resources
- Offices in Boston, Chicago, Miami, New York, Portland (OR), San Diego, and London
- We advise on \$1.4 trillion in client assets
  - Over \$100 billion in assets committed to alternative investments
    - Private Equity
    - Infrastructure
    - Natural Resources
    - Real Estate
    - Hedge Funds
    - Commodities



**Meketa Investment Group is proud to work for over 5 million American families everyday.**

<sup>1</sup> On March 15, 2019, 31 employees joined the firm as part of the merger of Meketa Investment Group and Pension Consulting Alliance.

<sup>2</sup> Client Retention Rate is one minus the number of clients lost divided by the number of clients at prior year-end.

## Asset Classes Followed Intensively by Meketa Investment Group

Domestic Equities	International Equities	Private Equity	Real Assets	Fixed Income	Hedge Funds
<ul style="list-style-type: none"> <li>- Passive</li> <li>- Enhanced Index</li> <li>- Large Cap</li> <li>- Midcap</li> <li>- Small Cap</li> <li>- Microcap</li> <li>- 130/30</li> </ul>	<ul style="list-style-type: none"> <li>- Large Cap Developed</li> <li>- Small Cap Developed</li> <li>- Emerging Markets</li> <li>- Frontier Markets</li> </ul>	<ul style="list-style-type: none"> <li>- Buyouts</li> <li>- Venture Capital</li> <li>- Private Debt</li> <li>- Special Situations</li> <li>- Secondaries</li> <li>- Fund of Funds</li> </ul>	<ul style="list-style-type: none"> <li>- Public REITs</li> <li>- Core Real Estate</li> <li>- Value Added Real Estate</li> <li>- Opportunistic Real Estate</li> <li>- Infrastructure</li> <li>- Timber</li> <li>- Natural Resources</li> <li>- Commodities</li> </ul>	<ul style="list-style-type: none"> <li>- Short-Term</li> <li>- Core</li> <li>- Core Plus</li> <li>- TIPS</li> <li>- High Yield</li> <li>- Bank Loans</li> <li>- Distressed</li> <li>- Global</li> <li>- Emerging Markets</li> </ul>	<ul style="list-style-type: none"> <li>- Long/Short Equity</li> <li>- Event Driven</li> <li>- Relative Value</li> <li>- Fixed Income Arbitrage</li> <li>- Multi Strategy</li> <li>- Market Neutral</li> <li>- Global Macro</li> <li>- Fund of Funds</li> <li>- Portable Alpha</li> </ul>

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PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

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

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

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

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

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

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

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

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

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

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

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

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

**SI:** Since Inception

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

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

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

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

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

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

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

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

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

Sources: Investment Terminology, International Foundation of Employee Benefit Plans, 1999.

The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991

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

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

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