

**KENTUCKY RETIREMENT SYSTEMS  
QUARTERLY  
INVESTMENT COMMITTEE MEETING  
AGENDA  
Tuesday, August 27th, 2019  
9:00 a.m.**

- |         |  |
|---------|--|
| 9:00AM  | Call to Order  |
| 9:01AM  | Approval of Minutes*- July 25th, 2019                      |
| 9:05AM  | Standard Reports – Rich Robben                             |
| 9:10AM  | New Fund Recommendation* – JP Morgan – Joe Gilbert         |
| 9:20AM  | New Fund Recommendation* – Pzena – Joe Gilbert             |
| 9:30AM  | New Fund Recommendation* – Next Century – Joe Gilbert      |
| 9:40AM  | Strategic Partnerships Update – Andy Kiehl                 |
| 9:50AM  | New Fund Recommendation: Capital Spring* – Anthony Chiu    |
| 10:30AM | Additional Deposit Recommendation: Arrowmark* – Andy Kiehl |
| 11:15AM | BNY Mellon Custody Contract Renewal* – Rich Robben         |
| 11:30AM | IPS Review and Proposed Changes* – Rich Robben & Wilshire  |
| 12:15PM | Adjourn  |

*\* All times are approximations, one or more items on this agenda may be discussed in closed session.*

**MINUTES OF MEETING  
KENTUCKY RETIREMENT SYSTEMS  
SPECIAL CALLED INVESTMENT COMMITTEE  
JULY 25, 2019, 12:30 P.M., E.T.  
312 WHITTINGTON PARKWAY, LOUISVILLE, KENTUCKY**

At the July 25, 2019 Special Called Investment Committee Meeting, the following Committee members were present: Dave Harris (Chair), Kelly Downard, Prewitt Lane, Matthew Monteiro, and Jerry Powell. Staff members present were David Eager, Mark Blackwell, Rich Robben, Anthony Chiu, Carol Johnson and Alane Foley. Michele Hill and Chris Lancaster were also present.

Mr. Harris called the meeting to order and Ms. Alane Foley called roll.

Mr. Harris introduced the agenda item *Approval of Minutes- May 16, 2019 and June 18, 2019*. Mr. Powell moved and was seconded by Mr. Downard to approve the May 16, 2019 and June 18, 2019 minutes as presented. The motion passed unanimously.

Mr. Harris introduced agenda item  *Holding of Transitional Funds Recommendation*. Mr. Rich Robben advised Committee Members that going forward, the best option for our excess cash balances would be to utilize our existing Lord Abbett Short Credit account. This account has a duration of less than half of the Intermediate Credit Fund we previously held, is less volatile, but produces similar returns. Mr. Powell made a motion and was seconded by Mr. Monteiro to designate the existing Lord Abbett Short Credit portfolios as the transitional cash holding accounts, giving Staff full authority to move funds into and out of these account at their discretion as necessary. Any cash movements within the Lord Abbett accounts will be reported to the Investment Committee at the next scheduled meeting. The motion passed unanimously.

There being no further business, Mr. Powell moved and was seconded by Mr. Monteiro to adjourn the meeting at 1:00 p.m. The next meeting of the Investment Committee is scheduled for 9:00

a.m. August 27, 2019. Copies of all documents presented are incorporated as part of the minutes of the Investment Committee meeting held July 25, 2019.

## CERTIFICATION

I do certify that I was present at this meeting and I have recorded above the action of the Committee on the various items considered by it at this meeting. Further, I certify that all requirements of KRS 61.805-61.850 were met in connection with this meeting.

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Recording Secretary

I, as Chair of the Investment Committee of the Board of Trustees of the Kentucky Retirement Systems, do certify that the Minutes of the meeting held on July 25, 2019 were approved by the Investment Committee on August 27, 2019.

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Committee Chair

I have reviewed the Minutes of the Investment Committee Meeting on July 25, 2019 for form, content, and legality.

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Office of Legal Services

June 2019

KRS MONTHLY PERFORMANCE UPDATE

**What's going on in the marketplace?**

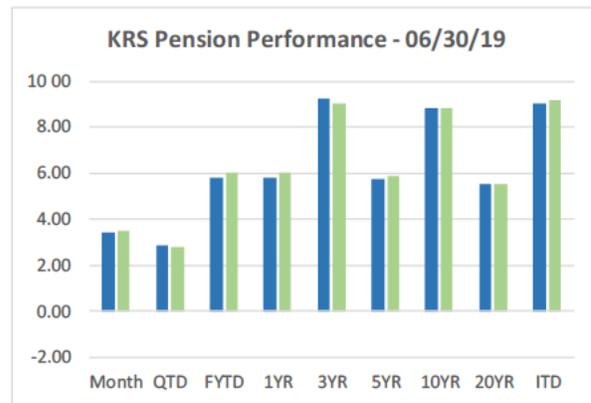
After global equity markets fell off a cliff in May, investors experienced a “V”-shaped rebound in June. Hopes of a trade deal between the U.S. and China emerged once again. U.S. markets gained roughly 7% (Russell 3000), while Non-U.S. markets rose nearly 6% (MSCI ACWI Ex-US). U.S. markets outperformed, spurred on by economic and earning data that was relatively better than the broader global economy. Accommodative policies from central banks and a narrowing of credit spreads helped push the fixed income markets higher.

The fiscal year itself can best be described as volatile. The first quarter of the fiscal year experienced rising global markets that were largely driven by the U.S. In general, U.S. economic data showed solid earnings, but outside of the U.S. concerns of a slowdown in growth loomed, particularly in China. The last quarter of 2018, was significantly volatile to the downside as concerns of an all-out trade war with China began to surface. That, combined with a slowdown in global growth and a lack of a workable Brexit plan weighed heavily on the markets. This caused market sell-offs as investors fled to higher quality and safer asset classes. With the beginning of the new year, a light switch was flipped and global market began to rise aggressively. This was spurred on by perceived stabilizing global growth, more accommodative central bank rhetoric and policies, and optimism surrounding a trade deal between the U.S. and China. The rise in markets continued through April. In May, markets tumbled as talks between the U.S. and China broke down and the idea of tariffs on Mexico was floated as a means of curbing border crossings. As mentioned above, the fiscal year finished on a high as talks between the U.S. and China resumed. The result of all this turmoil was U.S. equity markets gaining nearly 9%, Non-U.S. equity markets were just slightly positive, the broad-based fixed income market gained nearly 8%, and the U.S. real estate market gained roughly 6.5%.

**U.S. Equities**

After falling over 6% in May, U.S. equity markets came roaring back returning just over 7% during the month per the Russell 3000. All market cap segments provided significant returns with mid-caps leading the way, gaining 7.6%. There was no significant style bias as value just slightly outpaced growth (R3000V 7.1%, R3000G 6.9%).

During the month, the KRS U.S. equity portfolio performed in line with the Russell 300 Index, trailing by just 3 basis points. For the quarter, the allocation outpaced its index by 15 bps and earned 4.2% primarily due to the strong stock selection of several strategies. During the fiscal year, the U.S. equity portfolio gained approximately 7.7% versus the 9.0% of the index. Roughly half of the shortfall was due to the poor performance of a mid-cap value manager who was terminated midway through the fiscal year and to portfolio alignment in terms of market cap. During the fiscal year the portfolio was overweight mid and small caps, which significantly underperformed large caps (LC: 10.4%, MC: 1.4%, SC: -3.3%).

**Non-U.S. Equities**

Non-U.S. equities also performed well during the month, returning 5.8% per the MSCI ACWI Ex-US IMI Index. Both developed and emerging markets provided significant returns during the month of approximately 6.0%. For the fiscal year, developed markets slightly outperformed their emerging counterparts by roughly 20 basis points, returning 1.3% for the period.



60.00% S&P 1500 Composite Index  
 40.00% Barclays US Corporate High Yield Index  
 07/01/11 to 12/31/15  
 100.00% Russell 3000 Index + 4% (Qtr Lag)

**01/01/16 to Present**

**100.00% Russell 3000 Index + 3% (Qtr Lag)**

- 5) The Private Equity & Real Return Benchmarks, from one month returns up until five year returns, is equal to the performance of the associated KRS allocations. Given there is not appropriate benchmark to use for short term performance evaluation, this will allow greater focus on longer term returns, which is more appropriate given the long term nature of these investments.

Pension Benchmark Composite 01/01/16 to 08/31/17

US Equity: Russell 3000 (25.6%)  
 Non US Equity: MSCI AXCI Ex-US IMI (25.2%)  
 Global Fixed Income: Barclays Universal Index (6.8%)  
 Credit Fixed Income: Barclays US High Yield (7.2%)  
 Real Estate: NCREIF ODCE (5.0%)  
 Absolute Return: HFRI Diversified FOF (10.0%)  
 Real Return: Allocation Specific (8.0%)  
 Private Equity<5Yrs: Actual Performance  
 Private Equity>5Yrs: Russell 3000 Index+3% (10.0%)  
 Cash: Cit Grp 3-mos Treasury Bill (2.2%)

Pension Benchmark Composite 09/01/17 to 05/31/18 -  
 Transition Period w/Sliding Targets

US Equity: Russell 3000 (23.6%)  
 Non US Equity: MSCI AXCI Ex-US IMI (23.2%)  
 Global Fixed Income: Barclays Universal Index (9.0%)  
 Credit Fixed Income: Barclays US High Yield (9.0%)  
 Real Estate: NCREIF ODCE (5.0%)  
 Absolute Return: HFRI Diversified FOF (10.0%)  
 Real Return<5Yrs: Actual Performance  
 Real Return>5Yrs: CPI+3% (8%)  
 Private Equity<5Yrs: Actual Performance  
 Private Equity>5Yrs: Russell 3000 Index+3% (10.0%)  
 Cash: Cit Grp 3-mos Treasury Bill (2.2%)

Pension Benchmark Composite 06/01/18 to Present

**US Equity: Russell 3000 (17.0%)**  
**Non US Equity: MSCI AXCI Ex-US IMI (21.0%)**  
**Global Fixed Income: Barclays Universal Index (13.0%)**  
**Credit Fixed Income: Barclays US High Yield (12.4%)**  
**Real Estate: NCREIF ODCE (5.0%)**  
**Absolute Return: HFRI Diversified FOF (10.0%)**  
**Real Return<5Yrs: Actual Performance**  
**Real Return>5Yrs: CPI+3% (10.0%)**  
**Private Equity<5Yrs: Actual Performance**  
**Private Equity>5Yrs: Russell 3000 Index+3% (9.4%)**  
**Cash: Cit Grp 3-mos Treasury Bill (2.2%)**

\*\*Fund composite benchmark is a roll-up of individual plans, which may differ from one another.

80.00% S&P 1500 Composite Index  
 20.00% Barclays US Corporate High Yield Index  
 07/01/11 to 12/31/15

100.00% Russell 3000 Index + 4% (Qtr Lag)

**01/01/16 to Present**

**100.00% Russell 3000 Index + 3% (Qtr Lag)**

Insurance Benchmark Composite 01/01/16 to 08/31/17

US Equity: Russell 3000 (26.5%)  
 Non US Equity: MSCI AXCI Ex-US IMI (26.5%)  
 Global Fixed Income: Barclays Universal Index (6.0%)  
 Credit Fixed Income: Barclays US High Yield (6.0%)  
 Real Estate: NCREIF ODCE (5.0%)  
 Absolute Return: HFRI Diversified FOF (10.0%)  
 Real Return: Allocation Specific (8.0%)  
 Private Equity<5Yrs: Actual Performance  
 Private Equity>5Yrs: Russell 3000 Index+3% (10.0%)  
 Cash: Cit Grp 3-mos Treasury Bill (2.0%)

Insurance Benchmark Composite 09/01/17 to 05/31/18 -  
 Transition Period w/Sliding Targets

US Equity: Russell 3000 (24.5%)  
 Non US Equity: MSCI AXCI Ex-US IMI (24.5%)  
 Global Fixed Income: Barclays Universal Index (8.0%)  
 Credit Fixed Income: Barclays US High Yield (8.0%)  
 Real Estate: NCREIF ODCE (5.0%)  
 Absolute Return: HFRI Diversified FOF (10.0%)  
 Real Return<5Yrs: Actual Performance  
 Real Return>5Yrs: CPI+3% (8%)  
 Private Equity<5Yrs: Actual Performance  
 Private Equity>5Yrs: Russell 3000 Index+3% (10.0%)  
 Cash: Cit Grp 3-mos Treasury Bill (2.0%)

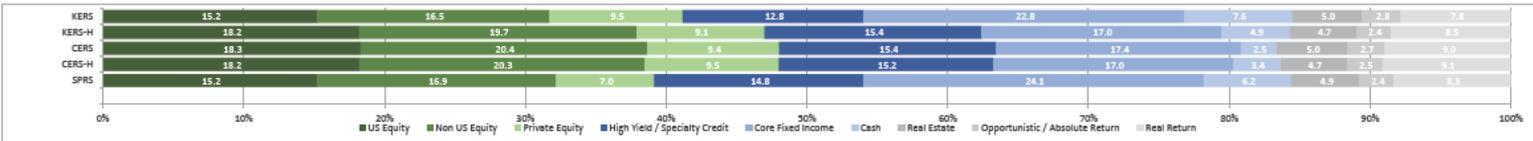
Insurance Benchmark Composite 06/01/18 to Present

**US Equity: Russell 3000 (17.9%)**  
**Non US Equity: MSCI AXCI Ex-US IMI (21.9%)**  
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**Cash: Cit Grp 3-mos Treasury Bill (2.0%)**

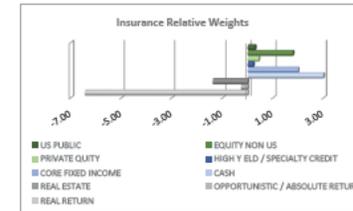
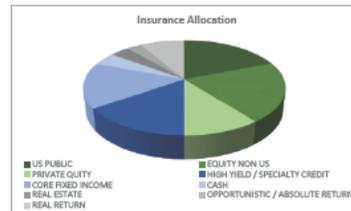
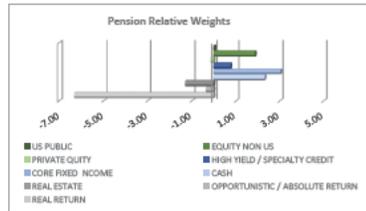
Investment Committee Meeting- August 27, 2019 - Standard Reports

KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - NET RETURNS - 06/30/19																							
Structure	Benchmark	Inception	Market Value	% of Total	Month		QTD		Fiscal YTD		1 Year		3 Years		5 Years		10 Years		20 Years		ITOE		
					KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS
TOTAL FUND	KY Ret. Blended Index	4/1/1984	12,745,732,930.20	100.00	3.40	3.46	2.83	2.81	5.83	5.99	5.83	5.99	9.24	9.02	5.76	5.85	8.82	8.83	5.49	5.55	5.87	9.15	
GROWTH			8,073,288,811.04	63.34	4.69	3.31			5.87	5.99	5.87												
US PUBLIC	KY Domestic Equity Blend	4/1/1984	2,325,593,793.39	18.25	6.99	7.02	4.25	4.10	7.72	8.98	7.72	8.98	13.33	14.02	9.38	10.19	13.99	14.70	6.38	6.54	11.26	11.32	
EQUITY NON US	KY Ret.Int'l Eq. Blended Index	7/1/2000	2,557,201,639.27	20.06	6.14	5.80	3.29	2.74	1.10	0.26	1.10	0.26	10.45	9.36	3.44	2.36	7.04	6.94			3.15	3.36	
PRIVATE EQUITY	Russell 3000 3%(Qtr Lag)	7/1/2002	1,181,283,402.70	9.27	3.17	3.17	3.39	3.39	11.50	11.50	11.50	12.92	12.92	10.73	10.73	13.91	16.83					11.19	11.33
HIGH YIELD / SPECIALTY CREDIT	Bloomberg Barclays US High Yield		2,009,209,975.68	15.76	1.27				6.81		6.81											6.35	
FIXED INCOME / LIQUIDITY			2,758,296,682.77	21.64	1.00				6.26		6.26											6.26	
CORE FIXED INCOME	Bloomberg Barclays US Aggregate		2,286,911,689.57	17.94	1.16	1.26	2.62	3.08	7.09	7.87	7.09	7.87	2.34	2.31	2.97	2.95						3.30	4.01
CASH	Citigroup Treasury Bill-3 Month	1/1/1988	471,384,993.20	3.70	0.20	0.20	0.65	0.61	2.37	2.30	2.37	2.30	1.75	1.36	1.17	0.84	0.88	0.46	2.20	1.76		3.56	3.11
DIVERSIFYING STRATEGIES			1,914,475,517.75	15.02	1.60				5.13		5.13											5.13	
REAL ESTATE	NCREIF NPI-ODCE Net 1 Qtr in Arrears Index*	7/1/1984	472,326,058.99	3.71	1.02	1.20	1.65	1.20	8.81	6.55	8.81	6.55	9.96	7.01	9.38	9.18	9.24	7.73	7.14	7.46		6.18	6.46
OPPORTUNISTIC / ABSOLUTE R	HFR1 Diversified		336,235,532.36	2.63	-1.01	1.53	-0.48	1.72	-0.54	1.84	-0.54	1.84	3.42	4.12	1.81	2.49						3.63	2.94
REAL RETURN	Pension Real Return Custom Benchmark	7/1/2011	1,105,913,926.40	8.68	2.47	2.47	2.05	2.05	5.02	5.02	5.02	5.02	4.81	4.81	2.25	2.25						3.87	2.83

KENTUCKY RETIREMENT SYSTEMS - PENSION FUND - PLAN NET RETURNS - 06/30/19																						
Plan	Benchmark	Inception	Market Value	% of Total	Month		3 Months		Fiscal YTD		1 Year		3 Years		5 Years		10 Years		20 Years		ITOE	
					KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark
KERS	KY Ret. KERS Plan Index		2,178,482,589.03	100.00	2.97	3.16	2.57	2.76	5.73	6.19	5.73	6.19	8.40	8.40	5.31	5.55	8.59	8.69	5.37	5.48	8.98	9.11
KERS-H	KY Ret. KERS Haz Plan Index		684,895,131.97	100.00	3.42	3.55	2.80	2.84	5.68	5.99	5.68	5.99	9.22	9.22	5.78	5.72	8.84	8.81	5.49	5.54	9.05	9.15
CERS	KY Ret. CERS Plan Index		7,188,717,502.66	100.00	3.50	3.55	2.87	2.84	5.78	5.99	5.78	5.99	9.40	9.24	5.83	5.71	8.86	8.81	5.50	5.54	9.05	9.15
CERS-H	KY Ret. CERS Haz Plan Index		2,414,117,232.82	100.00	3.50	3.55	2.87	2.84	5.80	5.99	5.80	5.99	9.38	9.23	5.86	5.71	8.87	8.81	5.51	5.54	9.06	9.15
SPRS	KY Ret. SPRS Plan Index		279,560,477.51	100.00	3.00	3.16	2.65	2.76	5.71	6.07	5.71	6.07	8.58	8.69	5.14	5.47	8.51	8.68	5.33	5.48	8.96	9.11

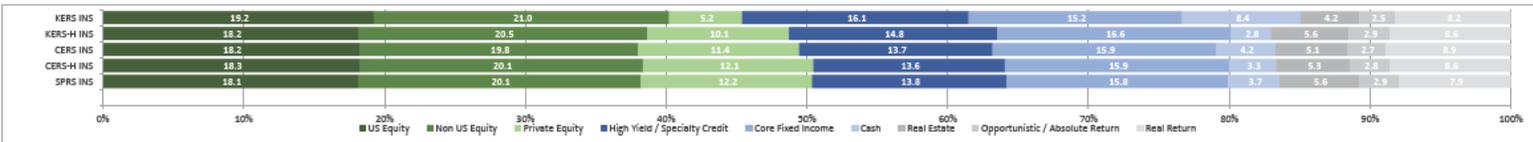


Note: The above chart displays the average monthly asset allocation.



KENTUCKY RETIREMENT SYSTEMS - INSURANCE FUND - NET RETURNS - 06/30/19																							
Structure	Benchmark	Inception	Market Value	% of Total	Month		QTD		Fiscal YTD		1 Year		3 Years		5 Years		10 Years		20 Years		ITOE		
					KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS
TOTAL FUND	KY Ret. Blended Index	4/1/1987	5,443,501,143.81	100.00	3.45	3.51	2.82	2.82	5.57	5.88	5.57	5.88	9.43	9.26	5.92	6.14	8.97	9.52	4.96	5.23	7.41	7.76	
GROWTH			3,549,564,166.97	65.21	4.69	3.29			5.70		5.70												
US PUBLIC	KY Domestic Equity Blend	7/1/1992	1,035,692,759.55	19.03	6.98	7.02	4.25	4.10	7.74	8.98	7.74	8.98	13.34	14.02	9.62	10.19	13.98	14.60	6.40	6.26	9.67	9.59	
EQUITY NON US	KY Ret.Int'l Eq. Blended Index	4/1/2000	1,117,366,315.24	20.53	6.15	5.80	3.24	2.74	0.94	0.26	0.94	0.26	10.37	9.36	3.32	2.36	6.71	6.76			3.13	2.56	
PRIVATE EQUITY	Russell 3000 3%(Qtr Lag)	7/1/2002	567,840,802.12	10.43	3.06	3.06	3.28	3.28	10.88	10.88	10.88	10.88	13.95	13.95	13.39	13.39	15.61	16.91			10.29	10.79	
HIGH YIELD / SPECIALTY CREDIT	Bloomberg Barclays US High Yield		828,664,290.06	15.22	1.19				6.69		6.69											6.02	
FIXED INCOME / LIQUIDITY			1,082,363,123.99	19.88	0.94				6.09		6.09											6.09	
CORE FIXED INCOME	Bloomberg Barclays US Aggregate	7/1/2013	843,964,872.80	15.50	1.15	1.26	2.63	3.08	7.07	7.87	7.07	7.87	2.33	2.31	2.60	2.95						2.96	3.22
CASH	Citigroup Treasury Bill-3 Month	7/1/1992	238,398,251.19	4.38	0.20	0.20	0.62	0.61	2.32	2.30	2.32	2.30	1.50	1.36	1.00	0.84	0.64	0.46	1.94	1.76		2.63	2.50
DIVERSIFYING STRATEGIES			811,794,398.40	14.91	1.54				5.15		5.15											5.15	
REAL ESTATE	NCREIF NPI-ODCE Net 1 Qtr in Arrears Index*	7/1/2018	197,044,207.15	3.62	1.03	1.20	1.66	1.20	9.97	6.55	9.97	6.55	10.18	7.01	9.61	9.18						9.20	6.03
OPPORTUNISTIC / ABSOLUTE R	HFR1 Diversified	5/1/2009	149,504,609.29	2.75	-0.99	1.53	-0.48	1.72	-0.48	1.84	-0.48	1.84	3.42	4.12	1.84	2.49						3.58	2.94
REAL RETURN	Pension Real Return Custom Benchmark	7/1/2011	465,245,581.96	8.55	2.35	2.35	2.09	2.09	4.91	4.91	4.91	4.91	4.44	4.44	2.14	2.14						3.61	2.88

KENTUCKY RETIREMENT SYSTEMS - INSURANCE FUND - PLAN NET RETURNS - 06/30/19																						
Plan	Benchmark	Inception	Market Value	% of Total	Month		3 Months		Fiscal YTD		1 Year		3 Years		5 Years		10 Years		20 Years		ITOE	
					KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark	KRS	Benchmark
KERS INS	KY Ins. KERS Plan Index		925,974,528.17	100.00	3.36	3.52	2.69	2.84	4.95	5.92	4.95	5.92	8.84	9.37	5.41	5.84	8.85	9.40	4.81	5.17	7.31	7.73
KERS-H INS	KY Ins. KERS Haz Plan Index		626,482,902.80	100.00	3.45	3.52	2.82	2.84	5.61	5.92	5.61	5.92	9.37	9.37	5.85	5.91	8.95	9.43	4.96	5.19	7.41	7.74
CERS INS	KY Ins. CERS Plan Index		2,471,970,818.18	100.00	3.45	3.52	2.82	2.84	5.73	5.90	5.73	5.90	9.49	9.33	5.99	5.93	9.01	9.45	4.99	5.20	7.43	7.74
CERS-H INS	KY Ins. CERS Haz Plan Index		1,320,169,479.20	100.00	3.49	3.52	2.85	2.84	5.81	5.90	5.81	5.90	9.56	9.33	6.06	5.93	9.05	9.45	5.00	5.20	7.44	7.74
SPRS INS	KY Ins. SPRS Plan Index		198,903,421.06	100.00	3.46	3.52	2.83	2.84	5.74	5.90	5.74	5.90	9.54	9.33	6.02	5.94	9.03	9.45	4.99	5.20	7.43	7.74



Note: The above chart displays the average monthly asset allocation.

Kentucky Retirement Systems

# Domestic and Global Commissions Report

Quarter Ending: June 30, 2019

Kentucky Retirement Systems					
Domestic Equity - Common Stock Commissions					
Quarter Ended June 30, 2019					

Broker/Account	Shares Traded	Commission	Value of Trade	Per Share	% Cost of Trade
BAIRD, ROBERT W & CO INC, MILWAUKEE	29,000	1,160	1,570,486	0.0400	0.0739%
BARCLAYS	197,686	2,961	5,831,572	0.0150	0.0508%
BERNSTEIN SANFORD C & CO, NEW YORK	46,717	1,403	2,160,803	0.0300	0.0649%
BMO CAPITAL MARKETS CORP, NEW YORK	9,730	389	589,091	0.0400	0.0661%
BTIG LLC, NEW YORK	49,359	1,481	1,742,347	0.0300	0.0850%
CANTOR FITZGERALD & CO INC, NEW YORK	4,146	124	251,102	0.0300	0.0495%
CITIGROUP	26,940	275	1,370,201	0.0102	0.0201%
COWEN AND CO LLC, NEW YORK	31,399	1,132	2,660,907	0.0361	0.0425%
CREDIT SUISSE	197,666	4,052	8,445,931	0.0205	0.0480%
DEUTSCHE BANK	12,189	488	607,660	0.0400	0.0802%
DIRECT TRADING, UNITED STATES	13,260	398	748,099	0.0300	0.0532%
GOLDMAN SACHS	6,646	191	352,735	0.0287	0.0540%
GUGGENHEIM CAPITAL MARKETS LLC, NEW YORK	11,116	445	815,017	0.0400	0.0546%
ICBC FINCL SVCS, NEW YORK	1,190,288	11,903	46,639,628	0.0100	0.0255%
INSTINET CORP	540,284	15,663	11,785,849	0.0290	0.1329%
INVESTMENT TECH GROUP INC, NEW YORK	65,314	1,958	1,419,648	0.0300	0.1379%
ISI GROUP	31,782	516	3,084,622	0.0162	0.0167%
ITG INC, NEW YORK	702,085	7,026	19,143,883	0.0100	0.0367%
J.P MORGAN SECURITIES INC, NEW YORK	148,326	3,780	10,915,662	0.0255	0.0346%
JEFFERIES & CO INC, NEW YORK	175,105	4,378	2,318,642	0.0250	0.1888%
JMP SECURITIES, SAN FRANCISCO	1,060	42	86,519	0.0400	0.0490%
JONESTRADING INST SVCS LLC, NEW YORK	73,700	2,211	5,078,603	0.0300	0.0435%
JP MORGAN SECURITIES	70	1	2,586	0.0200	0.0541%
KEYBANC CAPITAL MARKETS INC, NEW YORK	6,830	273	324,691	0.0400	0.0841%
LEERINK SWANN AND COMPANY, NEW YORK	21,060	842	612,378	0.0400	0.1376%
LIQUIDNET INC, NEW YORK	103,304	3,039	8,533,464	0.0294	0.0356%
LUMINEX TRADING AND ANALYTICS, BOSTON	15,980	431	2,823,092	0.0270	0.0153%
MERRILL LYNCH	22,757	623	2,997,993	0.0274	0.0208%
MKM PARTNERS LLC, GREENWICH	30,130	1,205	2,719,623	0.0400	0.0443%
NATIONAL FINL SVCS CORP, NEW YORK	3,180	86	110,131	0.0270	0.0780%
NEEDHAM AND CO LLC, NEW YORK	5,120	205	212,596	0.0400	0.0963%
OPPENHEIMER & CO INC, NEW YORK	2,280	91	151,437	0.0400	0.0602%
PIPER JAFFRAY & CO., JERSEY CITY	30,330	1,213	1,394,505	0.0400	0.0870%
RAYMOND JAMES & ASSOC INC, ST PETERSBURG	179,373	4,730	11,267,694	0.0264	0.0420%
RBC CAPITAL MARKETS	99,609	2,746	2,724,007	0.0276	0.1008%
STEPHENS INC, LITTLE ROCK	2,160	86	97,681	0.0400	0.0885%
STIFEL NICOLAUS	24,540	982	1,597,829	0.0400	0.0614%
UBS	1,432,074	12,126	104,361,293	0.0085	0.0116%
WEEDEN and CO	77,925	2,281	8,813,842	0.0293	0.0259%
WELLS FARGO SECURITIES, LLC, NEW YORK	179,518	2,405	7,609,737	0.0134	0.0316%
WILLIAM BLAIR & CO, CHICAGO	55,491	2,220	3,523,195	0.0400	0.0630%
WOLFE TRAHAN SECURITIES, NEW YORK	4,190	168	181,550	0.0400	0.0923%
<b>TOTAL DOMESTIC</b>	<b>5,859,719</b>	<b>97,730</b>	<b>287,678,331</b>	<b>0.0167</b>	<b>0.0340%</b>

Broker/Account	Shares Traded	Commission	Value of Trade	Per Share	% Cost of Trade
NTGI STRUCTURED	703,845	7,038	19,177,936	0.0100	0.0367%
RIVER ROAD	29,912	822	1,507,227	0.0275	0.0545%
RIVER ROAD FAV	940,010	26,507	29,845,546	0.0282	0.0888%
S&P 500 INDEX	1,430,724	12,072	103,975,697	0.0084	0.0116%
STATE STREET TRANSIT	1,190,288	11,903	46,639,628	0.0100	0.0255%
TORTOISE CAP	497,570	5,851	15,057,680	0.0118	0.0389%
WESTFIELD CAPITAL	1,067,370	33,537	71,474,617	0.0314	0.0469%
<b>TOTAL DOMESTIC</b>	<b>5,859,719</b>	<b>97,730</b>	<b>287,678,331</b>	<b>0.0167</b>	<b>0.0340%</b>

Kentucky Retirement Systems					
Global Equity - Common Stock Commissions					
Quarter Ended June 30, 2019					

Broker/Account	Shares Traded	Commission	Value of Trade	Per Share	% Cost of Trade
BANCO BTG PACTUAL SA, RIO DE JANEIRO	350,000	386	772,730	0.0011	0.0500%
BANCO SANTANDER, NEW YORK	150,000	379	379,767	0.0025	0.0999%
BARCLAYS	873,153	3,733	10,160,072	0.0043	0.0367%
BERNSTEIN SANFORD C & CO, NEW YORK	56,050	42	566,711	0.0007	0.0074%
BNP PARIBUS	392,432	2,442	3,200,834	0.0062	0.0763%
BNY MELLON CLEARING	50,000	359	513,469	0.0072	0.0699%
CARNEGIE SECS LTD, HELSINKI (CASFFIH1)	4,312	146	161,526	0.0337	0.0901%
CITIGROUP	1,607,168	9,664	16,348,023	0.0060	0.0591%
CREDIT LYONNAIS SECS (ASIA), HONG KONG	1,300,000	502	322,566	0.0004	0.1556%
CREDIT SUISSE	8,573,959	63,542	57,440,531	0.0074	0.1106%
DEUTSCHE BANK	333,228	5,063	7,629,230	0.0152	0.0664%
DEUTSCHE SEC ASIA LTD, HONG KONG	7,800,000	2,253	4,066,234	0.0003	0.0554%
EXANE, PARIS (EXANFRPP)	57,089	1,487	4,974,182	0.0261	0.0299%
GOLDMAN SACHS	669,655	6,599	9,498,950	0.0099	0.0695%
HSBC	1,174,446	3,273	8,087,462	0.0028	0.0405%
INSTINET CORP	1,504,000	558	1,667,318	0.0004	0.0335%
INVESTMENT TECHNOLOGY GROUP LTD,DUBLIN	659,600	4,524	7,107,370	0.0069	0.0637%
ITG AUSTRALIA LTD, MELBOURNE	1,505,313	1,001	1,559,229	0.0007	0.0642%
J.P MORGAN SECURITIES INC, NEW YORK	22,500	225	1,629,126	0.0100	0.0138%
JEFFERIES & CO INC, NEW YORK	46,436	892	3,765,850	0.0192	0.0237%
JEFFERIES & CO LTD, LONDON	152,000	1,100	1,398,231	0.0072	0.0787%
JEFFERIES HONG KONG LIMITED, HONG KONG	67,000	311	443,536	0.0046	0.0701%
JP MORGAN SECURITIES	676,612	11,184	10,795,928	0.0165	0.1036%
JPMORGAN SECURITIES INC, NEW YORK	116,600	349	572,786	0.0030	0.0609%
LIQUIDNET EUROPE LIMITED, LONDON	9,294	177	353,730	0.0190	0.0500%
LIQUIDNET INC, NEW YORK	9,202	92	332,476	0.0100	0.0277%
LUMINEX TRADING AND ANALYTICS, BOSTON	9,202	46	330,628	0.0050	0.0139%
MACQUARIE SECURITIES	432,442	3,229	4,786,825	0.0075	0.0674%
MERRILL LYNCH	2,953,974	14,464	40,652,319	0.0049	0.0356%
MIZUHO SECURITIES USA INC. NEW YORK	172,300	1,696	3,393,529	0.0098	0.0500%
MORGAN STANLEY	3,444,655	23,827	45,158,350	0.0069	0.0528%
RBC CAPITAL MARKETS	615,871	6,679	10,954,370	0.0108	0.0610%
S G WARBURG, SEOUL	51,069	825	1,650,896	0.0162	0.0500%
SANFORD C BERNSTEIN & CO INC, LONDON	160,401	3,367	4,286,489	0.0210	0.0786%
SG SEC (LONDON) LTD, LONDON	50,000	215	539,302	0.0043	0.0399%
SOCIETE GENERALE LONDON BRANCH, LONDON	472,224	5,615	9,620,602	0.0119	0.0584%
SOCIETE GENERALE, PARIS	172,700	544	1,090,279	0.0032	0.0499%
TORONTO DOMINION SEC, TORONTO	2,500	10	91,627	0.0038	0.0104%
UBS	6,195,003	11,794	22,622,668	0.0019	0.0521%
WARBURG DILLON READ SEC, MUMBAI	3,250	26	32,221	0.0079	0.0799%
<b>TOTAL GLOBAL</b>	<b>42,895,640</b>	<b>192,618</b>	<b>298,957,972</b>	<b>0.0045</b>	<b>0.0644%</b>

Broker/Account	Shares Traded	Commission	Value of Trade	Per Share	% Cost of Trade
AMERICAN CENTURY	2,158,608	30,976	62,722,348	0.0143	0.0494%
FRANKIN TEMPLETON	26,645,400	61,606	80,571,716	0.0023	0.0765%
LAZARD ASSET MGMT	4,325,534	62,213	77,392,963	0.0144	0.0804%
LSV ASSET MANAGEMENT	6,312,903	24,822	52,931,960	0.0039	0.0469%
LSV ASSET MGMT	3,453,074	11,682	25,176,358	0.0034	0.0464%
MANULIFE ASSET MGMT	121	1,320	162,627	10.9091	0.8117%
<b>TOTAL GLOBAL</b>	<b>42,895,640</b>	<b>192,618</b>	<b>298,957,972</b>	<b>0.0045</b>	<b>0.0644%</b>

Kentucky Retirement Systems

# Security Litigation Report

Quarter Ending: June 30, 2019

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Claims Filed during the Quarter (pg 3):

**15**

Proceeds Received during the Quarter (pg 4):

**\$267,346.27**

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<b>Kentucky Retirement Systems</b>	
Quarterly Securities Litigation Report	
Quarter Ended 06/30/19	
<b>Total Claims Filed</b>	
No Claim on File	9
Fiscal Year 1997	1
Fiscal Year 1998	2
Fiscal Year 1999	5
Fiscal Year 2000	9
Fiscal Year 2001	8
Fiscal Year 2002	33
Fiscal Year 2003	45
Fiscal Year 2004	38
Fiscal Year 2005	89
Fiscal Year 2006	150
Fiscal Year 2007	70
Fiscal Year 2008	73
Fiscal Year 2009	85
Fiscal Year 2010	65
Fiscal Year 2011	69
Fiscal Year 2012	54
Fiscal Year 2013	48
Fiscal Year 2014	65
Fiscal Year 2015	80
Fiscal Year 2016	224
Fiscal Year 2017	140
Fiscal Year 2018	74
Fiscal Year 2019	55
<b>Total Filed</b>	<b>1,491</b>
<b>Proceeds Received</b>	
Fiscal Year 1998	\$67,682
Fiscal Year 1999	\$233,370
Fiscal Year 2000	\$303,918
Fiscal Year 2001	\$415,502
Fiscal Year 2002	\$387,318
Fiscal Year 2003	\$519,059
Fiscal Year 2004	\$1,080,920
Fiscal Year 2005	\$1,645,440
Fiscal Year 2006	\$797,535
Fiscal Year 2007	\$5,398,363
Fiscal Year 2008	\$5,402,336
Fiscal Year 2009	\$3,504,682
Fiscal Year 2010	\$2,776,544
Fiscal Year 2011	\$1,292,484
Fiscal Year 2012	\$468,657
Fiscal Year 2013	\$1,070,427
Fiscal Year 2014	\$308,704
Fiscal Year 2015	\$23,639,565
Fiscal Year 2016	\$2,417,957
Fiscal Year 2017	\$1,886,532
Fiscal Year 2018	\$2,247,966
Fiscal Year 2019	\$1,702,272
<b>Total Proceeds</b>	<b>\$57,567,235</b>

Investment Committee Meeting- August 27, 2019 - Standard Reports

Class Action Name	TNT Status Code	Status as of Date	Class Period Start Date	Class Period End Date	Class Account Id	Claimed Account Name
COBALT INTERNATIONAL ENERGY, INC. (SPONSOR DEFENDANTS)	FILED	4/4/2019	3/1/2011	11/3/2014	KR2F3006002	LOOMIS
INVESTMENT TECHNOLOGY GROUP, INC.	FILED	4/4/2019	2/28/2011	8/3/2015	KR2F1002002	NTGI STRUCTURED
INVESTMENT TECHNOLOGY GROUP, INC.	FILED	4/4/2019	2/28/2011	8/3/2015	KR3F1002002	NTGI STRUCTURED
VOLKSWAGEN AG (2015)	FILED	4/8/2019	11/18/2010	4/1/2016	2672606	ZZKRS PEN WESTWOOD MANAGEMEN-S
VOLKSWAGEN AG (2015)	FILED	4/8/2019	11/18/2010	4/1/2016	2672607	ZZKRS INS WESTWOOD MANAGEMEN-S
WAL-MART STORES INC.	FILED	4/10/2019	12/7/2011	7/20/2012	2672598	ZZKRS PEN RIVER ROAD ASSET M-S
WAL-MART STORES INC.	FILED	4/10/2019	12/7/2011	7/20/2012	2672602	ZZKRS INS RIVER ROAD ASSET M-S
WAL-MART STORES, INC.	FILED	4/15/2019	12/8/2011	4/20/2012	KR2F1902002	S&P 500 INDEX
WAL-MART STORES, INC.	FILED	4/15/2019	12/8/2011	4/20/2012	KR3F1902002	S&P 500 INDEX
VOLKSWAGEN AG (2015)	FILED	4/18/2019	11/19/2010	4/1/2016	KR3F1008002	WESTWOOD MGMT
AMERICAN HOME PATIENT INC.	FILED	4/23/2019	9/1/2010	10/29/2010	2602408	ZZ*KRS PEN NTGI STRUCTURED SM-
ALIBABA GROUP HOLDING LIMITED (CALIFORNIA SUPERIOR COURT)	FILED	5/2/2019	9/19/2014	10/5/2015	KR2F2005002	AMERICAN CENTURY
ALIBABA GROUP HOLDING LIMITED (CALIFORNIA SUPERIOR COURT)	FILED	5/2/2019	9/19/2014	10/5/2015	KR2F2901002	NON-US TRANS ACCT
ALIBABA GROUP HOLDING LIMITED (CALIFORNIA SUPERIOR COURT)	FILED	5/2/2019	9/19/2014	10/5/2015	KR3F2005002	AMERICAN CENTURY
ALIBABA GROUP HOLDING LIMITED (CALIFORNIA SUPERIOR COURT)	FILED	5/2/2019	9/19/2014	10/5/2015	KR3F2901002	NON-US TRANS ACCT
RENT-A-CENTER, INC. (2019)	FILED	5/2/2019	2/2/2015	10/10/2016	KR2F1002002	NTGI STRUCTURED
SNC-LAVILIN GROUP INC (CANADA)(ONTARIO)	FILED	5/6/2019	11/5/2009	2/22/2019	KEN01	KRS PEN PYRAMIS NON-US GROWTH
SNC-LAVILIN GROUP INC (CANADA)(ONTARIO)	FILED	5/6/2019	11/5/2009	2/22/2019	KEN02	KRS TRANSITION
SNC-LAVILIN GROUP INC (CANADA)(ONTARIO)	FILED	5/6/2019	11/5/2009	2/22/2019	KEN03	KRS INS PYRAMIS NON-US GROWTH
SNC-LAVILIN GROUP INC (CANADA)(ONTARIO)	FILED	5/6/2019	11/5/2009	2/22/2019	KEN07	KRS INS ARTIO GLOBAL
SNC-LAVILIN GROUP INC (CANADA)(ONTARIO)	FILED	5/6/2019	11/5/2009	2/22/2019	KEN08	KRS PEN ARTIO GLB EQ
SNC-LAVILIN GROUP INC (CANADA)(ONTARIO)	FILED	5/6/2019	11/5/2009	2/22/2019	KEN05	KRS INSURANCE TRANSITION AC
HEARTWARE INTERNATIONAL, INC.	FILED	5/14/2019	6/10/2014	1/11/2016	KR3F1002002	NTGI STRUCTURED
HEARTWARE INTERNATIONAL, INC.	FILED	5/14/2019	6/10/2014	1/11/2016	KR2F1002002	NTGI STRUCTURED
SANTANDER CONSUMER USA HOLDINGS INC. (2016)(UPDATE)	FILED	5/17/2019	2/3/2015	3/15/2016	KR2F1009002	INVESCO
ORBITAL ATK, INC. (2016)	FILED	5/30/2019	12/16/2014	8/9/2016	KR2F1002002	NTGI STRUCTURED
ORBITAL ATK, INC. (2016)	FILED	5/30/2019	12/16/2014	8/9/2016	KR3F1002002	NTGI STRUCTURED
ENDURANCE INTERNATIONAL GROUP HOLDINGS, INC.	FILED	5/31/2019	10/25/2013	12/16/2015	KR2F1002002	NTGI STRUCTURED
ENDURANCE INTERNATIONAL GROUP HOLDINGS, INC.	FILED	5/31/2019	10/25/2013	12/16/2015	KR3F1002002	NTGI STRUCTURED
THORATEC CORPORATION (2014)	FILED	6/7/2019	5/10/2011	11/4/2014	2602408	ZZ*KRS PEN NTGI STRUCTURED SM-
THORATEC CORPORATION (2014)	FILED	6/7/2019	5/10/2011	11/4/2014	2688058	ZZKRS INS NTGI STRUCTURED SM
ALERE INC.	FILED	6/10/2019	5/8/2013	10/3/2017	2602408	ZZ*KRS PEN NTGI STRUCTURED SM-
ALERE INC.	FILED	6/10/2019	5/8/2013	10/3/2017	2688058	ZZKRS INS NTGI STRUCTURED SM
THORATEC CORPORATION (2014)	FILED	6/18/2019	5/11/2011	8/6/2014	KR3F1002002	NTGI STRUCTURED
THORATEC CORPORATION (2014)	FILED	6/18/2019	5/11/2011	8/6/2014	KR2F1002002	NTGI STRUCTURED
OMNICARE INC. (2006)	FILED	6/21/2019	12/12/2005	8/31/2015	2606488	ZZKRS PEN INVESCO US QUANT C-S
OMNICARE INC. (2006)	FILED	6/21/2019	12/12/2005	8/31/2015	2644678	ZZKRS INS SYSTEMATIC FIN MGM-S
OMNICARE INC. (2006)	FILED	6/21/2019	12/12/2005	8/31/2015	2644679	ZZKRS PEN SYSTEMATIC FIN MGM-S
ALERE INC	FILED	6/26/2019	5/9/2013	10/3/2017	956765	KRS INS NTGI STRUCTURED


**Transaction Detail**  
**Reported By Transaction Category**

3/31/2019 - 6/30/2019

**Report ID : IACS0008**  
**Base Currency : USD**  
**Status : REVISED**

Trans Code	Shares/Par	Description	Trade Date	Price	Cost	Amount	Net Gain/Loss
Link Ref	Security ID	Broker	C. Settle Date	Local/Base	Local/Base	Local/Base	Local/Base
		Transaction No./Client Ref No.	Reported Date				
<b>CLASS ACTIONS</b>							
<b>CASH &amp; CASH EQUIVALENTS</b>							
<b>U.S. DOLLAR</b>							
CD	0.000	13 CIV. 3851 (RMB)BARRICK GOLD NA9123459 CORPORATION (2013) Distributi 20190408S000010 / 000000000987 KR2F20010002: KRS NONUS ACWI-EX	4/8/2019  4/8/2019	0.000000 0.000000	29.54 29.54	29.54 29.54	29.54 29.54
							Gain/Loss Local Amounts: 29.54 Long Gain/Loss Base Amounts: 29.54 Long
CD	0.000	PFIZER, INC (2004) 10/30/00-03 NA9123459 /16/05 CLASS ACTION PROCEEDS 20190415S000330 / 32964928 KR2F90010002: CASH ACCOUNT KR2	4/15/2019  4/15/2019	0.000000 0.000000	128,336.69 128,336.69	128,336.69 128,336.69	128,336.69 128,336.69
							Gain/Loss Local Amounts: 128,336.69 Long Gain/Loss Base Amounts: 128,336.69 Long
CD	0.000	AMEDISYS INC (2010) 08/01/05-1 NA9123459 2/30/11 CLASS ACTION PROCEEDS 20190415S000340 / 32964928 KR2F90010002: CASH ACCOUNT KR2	4/15/2019  4/15/2019	0.000000 0.000000	211.96 211.96	211.96 211.96	211.96 211.96
							Gain/Loss Local Amounts: 211.96 Long Gain/Loss Base Amounts: 211.96 Long
CD	0.000	AMEDISYS INC (2010) 08/01/05-1 NA9123459 2/30/11 CLASS ACTION PROCEEDS 20190415S000810 / 32964928 KR2F10020002: NTGI STRUCTURED	4/15/2019  4/15/2019	0.000000 0.000000	6,012.50 6,012.50	6,012.50 6,012.50	6,012.50 6,012.50
							Gain/Loss Local Amounts: 6,012.50 Long Gain/Loss Base Amounts: 6,012.50 Long
CD	0.000	1 14-CV-1031CLIFFS NATURAL RES NA9123459 OURCES INC (2014) Distribution 20190416S000040 / 000000000009 KR2F19020002: S&P 500 INDEX	4/16/2019  4/16/2019	0.000000 0.000000	32.17 32.17	32.17 32.17	32.17 32.17
							Gain/Loss Local Amounts: 32.17 Long Gain/Loss Base Amounts: 32.17 Long
CD	0.000	JP MORGAN SECURITIES LLC 01/03 NA9123459 /00-09/17/17 CLASS ACTION 20190503S000060 / 33075922 KR2F90010002: CASH ACCOUNT KR2	5/3/2019  5/3/2019	0.000000 0.000000	70,918.14 70,918.14	70,918.14 70,918.14	70,918.14 70,918.14
							Gain/Loss Local Amounts: 70,918.14 Long Gain/Loss Base Amounts: 70,918.14 Long



**Transaction Detail  
Reported By Transaction Category**

**Report ID : IACS0008  
Base Currency : USD  
Status : REVISED**

3/31/2019 - 6/30/2019

Trans Code Link Ref	Shares/Par Security ID	Description Broker Transaction No./Client Ref No.	Trade Date C. Settle Date Reported Date	Price Local/Base	Cost Local/Base	Amount Local/Base	Net Gain/Loss Local/Base
CD	0.000 NA9123459	AMERICAN INTL GROUP (2008) 03/ 15/06 - 09/05/15 20190517S000100 / 33157167 KR2F90010002: CASH ACCOUNT KR2	5/17/2019  5/17/2019	0.000000 0.000000	6,494.79 6,494.79	6,494.79 6,494.79	6,494.79 6,494.79 Gain/Loss Local Amounts: 6,494.79 Long Gain/Loss Base Amounts: 6,494.79 Long
CD	0.000 NA9123459	THE WILLIAMS COMPANIES INC (WW B) 07/24/00 - 07/22/02 20190529S000110 / 29MAY1940003 KR2F90010002: CASH ACCOUNT KR2	5/29/2019  5/29/2019	0.000000 0.000000	106.50 106.50	106.50 106.50	106.50 106.50 Gain/Loss Local Amounts: 106.50 Long Gain/Loss Base Amounts: 106.50 Long
CD	0.000 NA9123459	CERADYNE INV ( SUPERIOR COURT OF CALIF) 10/01/12 - 20190529S000230 / 29MAY1940003 KR2F10020002: NTGI STRUCTURED	5/29/2019  5/29/2019	0.000000 0.000000	980.21 980.21	980.21 980.21	980.21 980.21 Gain/Loss Local Amounts: 980.21 Long Gain/Loss Base Amounts: 980.21 Long
CD	0.000 NA9123459	2017-0423-JTLGALENA BIOPHARMA, INC. (2017) Distribution 1ST 20190531S000780 / 000000000000 KR2F10020002: NTGI STRUCTURED	5/31/2019  5/31/2019	0.000000 0.000000	0.40 0.40	0.40 0.40	0.40 0.40 Gain/Loss Local Amounts: 0.40 Long Gain/Loss Base Amounts: 0.40 Long
CD	0.000 NA9123459	BP P.L.C.(2010)(S.D. TEX.)-1ST SETTLEMENT PROCEEDS 20190614B000010 KR2F20020002: BOSTON CO NON-US	6/14/2019  6/14/2019	0.000000 0.000000	36,821.23 36,821.23	36,821.23 36,821.23	36,821.23 36,821.23 Gain/Loss Local Amounts: 36,821.23 Long Gain/Loss Base Amounts: 36,821.23 Long
<b>TOTAL U.S. DOLLAR CASH &amp; CASH EQUIVALENTS:</b>					<b>249,944.13</b>	<b>249,944.13</b>	<b>249,944.13</b>
<b>TOTAL CASH &amp; CASH EQUIVALENTS CLASS ACTIONS:</b>					<b>249,944.13</b>	<b>249,944.13</b>	<b>249,944.13</b>

EQUITY

U.S. DOLLAR



**Transaction Detail**  
**Reported By Transaction Category**  
 3/31/2019 - 6/30/2019

Report ID : IACS0008  
 Base Currency : USD  
 Status : REVISED

Trans Code Link Ref	Shares/Par Security ID	Description Broker Transaction No./Client Ref No.	Trade Date C. Settle Date Reported Date	Price Local/Base	Cost Local/Base	Amount Local/Base	Net Gain/Loss Local/Base
CD	0.000	REPRESENTS AFFILIATED COMPUTER	4/24/2019	0.000000	1,709.50	1,709.50	1,709.50
	008190100	SERVICES CLASS ACTION PROCEED		0.000000	1,709.50	1,709.50	1,709.50
		20190604A000250	5/1/2019				Gain/Loss Local Amounts: 1,709.50 Long
		KR2F19020002: S&P 500 INDEX					Gain/Loss Base Amounts: 1,709.50 Long
CD	0.000	REPRESENTS MERCK & CO INC	4/24/2019	0.000000	45.49	45.49	45.49
	58933Y105	CLASS ACTION PROCEEDS		0.000000	45.49	45.49	45.49
		20190604A000230	5/1/2019				Gain/Loss Local Amounts: 45.49 Long
		KR2F19020002: S&P 500 INDEX					Gain/Loss Base Amounts: 45.49 Long
<b>TOTAL U.S. DOLLAR EQUITY:</b>					<b>1,754.99</b>	<b>1,754.99</b>	<b>1,754.99</b>
					<b>1,754.99</b>	<b>1,754.99</b>	<b>1,754.99</b>
<b>TOTAL EQUITY CLASS ACTIONS:</b>					<b>1,754.99</b>	<b>1,754.99</b>	<b>1,754.99</b>
<b>TOTAL CLASS ACTIONS:</b>					<b>251,699.12</b>	<b>251,699.12</b>	<b>251,699.12</b>
<b>TOTAL TRANSACTIONS BASE:</b>					<b>251,699.12</b>	<b>251,699.12</b>	<b>251,699.12</b>



**Transaction Detail  
Reported By Transaction Category**

**Report ID : IACS0008  
Base Currency : USD  
Status : REVISED**

3/31/2019 - 6/30/2019

Trans Code Link Ref	Shares/Par Security ID	Description Broker Transaction No./Client Ref No.	Trade Date C. Settle Date Reported Date	Price Local/Base	Cost Local/Base	Amount Local/Base	Net Gain/Loss Local/Base
<b>CLASS ACTIONS</b>							
<b>CASH &amp; CASH EQUIVALENTS</b>							
<b>U.S. DOLLAR</b>							
CD	0.000 NA9123459	1-15-CV-07081-LLSRESOURCE CAPI TAL CORP. Distribution 1ST DIS 20190404S000320 / 000000000000 KR3F10020002: NTGI STRUCTURED	4/4/2019  4/4/2019	0.000000 0.000000	494.85 494.85	494.85 494.85	494.85 494.85 Gain/Loss Local Amounts: 494.85 Long Gain/Loss Base Amounts: 494.85 Long
CD	0.000 NA9123459	AMEDISYS INC (2010) 08/01/05-1 2/30/11 CLASS ACTION PROCEEDS 20190415S000740 / 32964928 KR3F10020002: NTGI STRUCTURED	4/15/2019  4/15/2019	0.000000 0.000000	303.12 303.12	303.12 303.12	303.12 303.12 Gain/Loss Local Amounts: 303.12 Long Gain/Loss Base Amounts: 303.12 Long
CD	0.000 NA9123459	1 14-CV-1031CLIFFS NATURAL RES OURCES INC (2014) Distribution 20190416S000040 / 000000000009 KR3F19020002: S&P 500 INDEX	4/16/2019  4/16/2019	0.000000 0.000000	14.03 14.03	14.03 14.03	14.03 14.03 Gain/Loss Local Amounts: 14.03 Long Gain/Loss Base Amounts: 14.03 Long
CD	0.000 NA9123459	30-2012-00604001-CU-BT-CXCCERA DYNE, INC. (SUPERIOR COURT OF 20190416S000150 / 000000000010 KR3F10020002: NTGI STRUCTURED	4/16/2019  4/16/2019	0.000000 0.000000	511.22 511.22	511.22 511.22	511.22 511.22 Gain/Loss Local Amounts: 511.22 Long Gain/Loss Base Amounts: 511.22 Long
CD	0.000 NA9123459	CERADYNE INV ( SUPERIOR COURT OF CALIF) 10/01/12 - 20190529S000250 / 29MAY1940003 KR3F10020002: NTGI STRUCTURED	5/29/2019  5/29/2019	0.000000 0.000000	436.22 436.22	436.22 436.22	436.22 436.22 Gain/Loss Local Amounts: 436.22 Long Gain/Loss Base Amounts: 436.22 Long
CD	0.000 NA9123459	2017-0423-JTLGALENA BIOPHARMA, INC. (2017) Distribution 1ST 20190531S000920 / 000000000000 KR3F10020002: NTGI STRUCTURED	5/31/2019  5/31/2019	0.000000 0.000000	0.20 0.20	0.20 0.20	0.20 0.20 Gain/Loss Local Amounts: 0.20 Long Gain/Loss Base Amounts: 0.20 Long



**Transaction Detail  
Reported By Transaction Category**

Report ID : IACS0008  
Base Currency : USD  
Status : REVISED

3/31/2019 - 6/30/2019

Trans Code Link Ref	Shares/Par Security ID	Description Broker Transaction No./Client Ref No.	Trade Date C. Settle Date Reported Date	Price Local/Base	Cost Local/Base	Amount Local/Base	Net Gain/Loss Local/Base
CD	0.000	BP P.L.C.(2010)(S.D. TEX.)-1ST	6/14/2019	0.000000	13,400.20	13,400.20	13,400.20
	NA9123459	SETTLEMENT PROCEEDS		0.000000	13,400.20	13,400.20	13,400.20
	20190614B000010		6/14/2019				Gain/Loss Local Amounts: 13,400.20 Long
	KR3F20020002:	BOSTON CO NON-US					Gain/Loss Base Amounts: 13,400.20 Long
<b>TOTAL U.S. DOLLAR CASH &amp; CASH EQUIVALENTS:</b>					<b>15,159.84</b>	<b>15,159.84</b>	<b>15,159.84</b>
					<b>15,159.84</b>	<b>15,159.84</b>	<b>15,159.84</b>
<b>TOTAL CASH &amp; CASH EQUIVALENTS CLASS ACTIONS:</b>					<b>15,159.84</b>	<b>15,159.84</b>	<b>15,159.84</b>
<b>EQUITY</b>							
<b>U.S. DOLLAR</b>							
CD	0.000	REPRESENTS AFFILIATED COMPUTER	4/24/2019	0.000000	487.31	487.31	487.31
	008190100	SERVICES CLASS ACTION PROCEED		0.000000	487.31	487.31	487.31
	20190604A000250		5/1/2019				Gain/Loss Local Amounts: 487.31 Long
	KR3F19020002:	S&P 500 INDEX					Gain/Loss Base Amounts: 487.31 Long
<b>TOTAL CLASS ACTIONS:</b>					<b>15,647.15</b>	<b>15,647.15</b>	<b>15,647.15</b>
<b>TOTAL TRANSACTIONS BASE:</b>					<b>15,647.15</b>	<b>15,647.15</b>	<b>15,647.15</b>

## ADJUSTED ENDING VALUE POINT TO POINT (4/1/2019 - 6/30/2019)

All Portfolio Investments

Base Currency: USD

Investment	Commitment	Beginning Valuation	Adjustments	Beginning Adjusted Valuation	Period Contributions	Period Distributions	Ending Valuation	Adjustments	Ending Adjusted Valuation	IRR <sup>1</sup>	Unann. IRR
<b>Kentucky Retirement Systems - Pension Fund</b>											
AMERRA Agri und II, LP	40,100,000	22,917,053	0	22,917,053	0	1,206,021	21,909,563	0	21,909,563	0.89	0.89
AMERRA-KRS Agri Holding Company, LP	65,000,000	43,694,532	0	43,694,532	646,766	522,581	43,694,532	124,185	43,818,717	0.00	0.00
Arbor Capital II, LP	22,500,000	4,019,288	0	4,019,288	0	4,548,422	4,019,288	-4,548,422	-529,134	0.00	0.00
Arcano KRS Fund I, .P.	36,000,000	25,851,507	0	25,851,507	0	674,831	25,307,987	0	25,307,987	0.51	0.51
Ares Special Situations Fund IV, L.P.	26,192,000	20,095,688	0	20,095,688	2,074,614	0	20,095,688	2,074,614	22,170,302	0.00	0.00
Bayings Real Estate European Value Add I SCSp	119,574,000	N/A	29,855,841	29,855,841	3,156,972	0	N/A	33,472,375	33,472,375	1.40	1.40
Bay Hills Capital I, LP	67,500,000	25,570,516	-2,034,000	23,536,516	0	139,500	25,570,516	-2,173,500	23,397,016	0.00	0.00
Bay Hills Capital II, .P.	51,250,000	61,575,407	2,214,457	63,789,864	634,795	3,029,435	61,575,407	-180,183	61,395,224	0.00	0.00
Bay Hills Emerging Partners II LP	45,000,000	79,656,312	-6,502,500	73,153,812	432,228	229,728	79,656,312	-6,300,000	73,356,312	0.00	0.00
Bay Hills Emerging Partners II-B LP	45,000,000	62,877,042	-5,152,500	57,724,542	0	211,500	62,877,042	-5,364,000	57,513,042	0.00	0.00
BDCM Opportunity Fund IV, L.P.	35,580,000	34,147,200	0	34,147,200	156,942	0	34,147,200	156,942	34,304,142	0.00	0.00
Blackstone Capital Partners V, L.P.	47,174,735	2,433,713	0	2,433,713	0	101,614	2,310,818	0	2,310,818	-0.90	-0.90
Blackstone Capital Partners VI, L.P.	60,000,000	52,471,312	0	52,471,312	888,753	506,217	51,818,883	0	51,818,883	-1.96	-1.96
BSP Private Credit Fund	100,000,000	49,492,340	0	49,492,340	6,600,660	1,037,045	49,492,340	5,563,615	55,055,955	0.00	0.00
BTG Pactual Brazil Timberland Fund I	34,500,000	24,022,028	0	24,022,028	0	0	24,022,028	0	24,022,028	0.00	0.00
Camelot Opportunities Fund, L.P.	23,400,000	7,406,174	0	7,406,174	0	0	7,406,174	0	7,406,174	0.00	0.00
Cerberus KRS Levered Loan Opportunities Fund, L.P.	87,500,000	89,911,696	0	89,911,696	0	0	92,079,175	0	92,079,175	2.41	2.41
Columbia Capital Equity Partners IV, L.P.	27,000,000	3,827,119	0	3,827,119	0	0	3,776,754	0	3,776,754	-1.32	-1.32
Crestview Partners, L.P.	67,500,000	31,896,538	0	31,896,538	0	0	31,896,538	0	31,896,538	0.00	0.00
Crestview Partners I, L.P.	39,000,000	29,422,650	0	29,422,650	1,516,026	374,406	29,422,650	1,141,620	30,564,270	0.00	0.00
CVC European Equity Partners VI, L.P.	24,963,372	26,550,171	-471,477	26,078,695	0	508,048	26,550,171	-609,079	25,941,093	1.42	1.42
DAG Ventures II, .P.	27,000,000	4,360,157	0	4,360,157	0	0	4,360,157	0	4,360,157	0.00	0.00
DAG Ventures III, L.P.	27,000,000	2,986,466	0	2,986,466	0	230,073	2,986,466	-230,073	2,756,392	0.00	0.00
DAG Ventures IV, L.P.	90,000,000	64,678,651	0	64,678,651	0	7,677,511	64,678,651	-7,677,511	57,001,140	0.00	0.00
DAG Ventures V, L.P.	8,000,000	29,987,020	0	29,987,020	0	1,770,192	29,987,020	-1,770,192	28,216,828	0.00	0.00
DCM VI, LP	13,500,000	11,748,648	0	11,748,648	0	0	11,748,648	0	11,748,648	0.00	0.00
DvcoWes Fund V	20,800,000	4,498,793	0	4,498,793	0	1,022,845	4,498,793	-1,022,845	3,475,948	0.00	0.00
Essex Woodlands and VIII, L.P.	22,500,000	11,981,788	0	11,981,788	0	0	11,981,788	0	11,981,788	0.00	0.00
Fundamental Partner III LP	70,000,000	39,789,260	0	39,789,260	0	1,057,402	40,711,101	0	40,711,101	4.98	4.98
Green Equity Investors IV, L.P.	67,500,000	613,926	0	613,926	0	0	597,591	0	597,591	-2.66	-2.66
Green Equity Investors V, L.P.	90,000,000	52,493,763	0	52,493,763	0	5,675,215	45,741,571	0	45,741,571	-2.08	-2.08
Green Equity Investors VI, L.P.	32,000,000	34,574,221	0	34,574,221	0	1,529,497	35,666,992	0	35,666,992	7.74	7.74
Green Equity Investors VII LP	25,000,000	13,927,525	0	13,927,525	2,048,467	0	17,214,360	0	17,214,360	8.02	8.02
Greenfield Acquisition Partners VI, L.P.	38,100,000	4,230,309	0	4,230,309	0	1,685,854	4,230,309	-1,685,854	2,544,455	0.00	0.00
Greenfield Acquisition Partners VII, L.P.	27,800,000	23,743,489	0	23,743,489	0	4,153,135	23,743,489	-4,153,135	19,590,354	0.00	0.00

<sup>1</sup> Calculation follows the "Nominalize Short Term IRR Values" preference

## ADJUSTED ENDING VALUE POINT TO POINT (4/1/2019 - 6/30/2019)

All Portfolio Investments

Base Currency: USD

Investment	Commitment	Beginning Valuation	Adjustments	Beginning Adjusted Valuation	Period Contributions	Period Distributions	Ending Valuation	Adjustments	Ending Adjusted Valuation	IRR <sup>1</sup>	Unann. IRR
<b>Kentucky Retirement Systems - Pension Fund</b>											
GTCR Fund IX-A, LP	63,000,000	138,628	0	138,628	0	0	138,628	0	138,628	0.00	0.00
H.I.G. BioVentures II, L.P.	13,500,000	13,776,976	0	13,776,976	790,583	0	13,776,976	790,583	14,567,559	0.00	0.00
H.I.G. Capital Partners V, L.P.	13,100,000	11,449,821	0	11,449,821	780,426	344,444	11,921,529	0	11,921,529	0.30	0.30
H.I.G. Ventures II, L.P.	18,000,000	6,020,029	0	6,020,029	0	0	6,020,029	0	6,020,029	0.00	0.00
H&F Spock I LP	3,250,153	5,096,397	0	5,096,397	0	0	5,096,397	0	5,096,397	0.00	0.00
Harvest Partners V, L.P.	36,000,000	5,993,447	0	5,993,447	0	0	5,993,447	0	5,993,447	0.00	0.00
Harvest Partners VI, L.P.	28,400,000	14,181,265	0	14,181,265	19,150	782,337	14,181,265	-763,187	13,418,078	0.00	0.00
Harvest Partners VI LP	20,000,000	12,550,424	0	12,550,424	3,973,020	379,083	12,550,424	3,593,937	16,144,361	0.00	0.00
Hellman and Friedman Capital Partners VI, L.P.	20,000,000	1,323,201	0	1,323,201	0	131,335	1,323,201	-131,335	1,191,866	0.00	0.00
Horsley Bridge International Fund V, L.P.	45,000,000	78,366,523	0	78,366,523	0	1,347,023	78,366,523	-1,347,023	77,019,500	0.00	0.00
Institutional Venture Partners XI, L.P.	0	0	0	0	0	0	0	0	0	N/A	N/A
Institutional Venture Partners XII, L.P.	27,000,000	6,836,663	0	6,836,663	0	0	6,836,663	0	6,836,663	0.00	0.00
JW Childs Equity Partners III, L.P.	36,000,000	773	0	773	0	0	773	0	773	0.00	0.00
Kayne Anderson Energy Fund VII LP	50,000,000	42,502,735	0	42,502,735	500,000	0	42,502,735	500,000	43,002,735	0.00	0.00
KCP IV Co-Invest	13,506,168	6,960,020	-123,596	6,836,424	0	2,355,388	6,960,020	-2,412,038	4,547,981	1.21	1.21
Keyhaven Capital Partners Fund III, L.P.	28,734,419	25,611,894	-1,522,219	24,089,675	137,754	4,047,398	25,611,894	-5,121,796	20,490,097	1.35	1.35
Keyhaven Capital Partners IV LP	13,506,168	8,934,196	-158,653	8,775,543	258,859	4,739,205	8,934,196	-4,539,274	4,394,922	1.24	1.24
Levine Leichtman Capital Partners V, L.P.	46,000,000	39,875,641	0	39,875,641	0	1,125,043	39,875,641	-1,125,043	38,750,598	0.00	0.00
Levine Leichtman Capital Partners VI LP	37,500,000	9,710,696	0	9,710,696	3,466,596	77,092	9,710,696	3,389,504	13,100,200	0.00	0.00
Lubert Adler VII	34,750,000	29,714,833	0	29,714,833	0	0	29,714,833	0	29,714,833	0.00	0.00
Lubert-Adler Real Estate Fund VII-B LP	36,750,000	20,539,159	0	20,539,159	0	0	20,539,159	0	20,539,159	0.00	0.00
Magenar MLP Energy Opportunities Fund II LLC	37,500,000	27,307,448	0	27,307,448	8,194,410	196,039	36,203,988	0	36,203,988	2.75	2.75
MatlinPatterson Global Opportunities Partners	45,000,000	0	0	0	0	0	0	0	0	N/A	N/A
MatlinPatterson Global Opportunities Partners II	45,000,000	1,338,213	0	1,338,213	0	0	1,338,213	0	1,338,213	0.00	0.00
MatlinPatterson Global Opportunities Partners III	45,000,000	12,854,641	0	12,854,641	0	0	12,854,641	0	12,854,641	0.00	0.00
Merit Mezzanine Fund IV, L.P.	27,000,000	2,653,895	0	2,653,895	0	1,967,438	2,653,895	-1,967,438	686,457	0.00	0.00
Mesa West Co-Ending Fund, LP	57,500,000	60,692,741	-1,033,794	59,658,947	0	990,125	60,692,741	-2,023,919	58,668,822	0.00	0.00
Mesa West Real Estate Income Fund II	9,999,999	0	0	0	0	0	0	0	0	N/A	N/A
Mesa West Real Estate Income Fund IV LP	36,000,000	11,578,506	-363,003	11,215,503	5,000,000	185,953	11,578,506	4,451,044	16,029,550	0.00	0.00
MHR Institutional Partners III, L.P.	0	0	0	0	0	0	0	0	0	N/A	N/A
Mill Road Capital I, L.P.	27,000,000	9,396,542	0	9,396,542	0	0	9,396,542	0	9,396,542	0.00	0.00
New Mountain Partners II, L.P.	25,000,000	359,939	0	359,939	0	0	359,939	0	359,939	0.00	0.00

<sup>1</sup> Calculation follows the "Nominalize Short Term IRR Values" preference

## ADJUSTED ENDING VALUE POINT TO POINT (4/1/2019 - 6/30/2019)

All Portfolio Investments

Base Currency: USD

Investment	Commitment	Beginning Valuation	Adjustments	Beginning Adjusted Valuation	Period Contributions	Period Distributions	Ending Valuation	Adjustments	Ending Adjusted Valuation	IRR <sup>1</sup>	Unann. IRR
<b>Kentucky Retirement Systems - Pension Fund</b>											
New Mountain Partners III, L.P.	33,750,000	22,716,543	0	22,716,543	0	0	22,716,543	0	22,716,543	0.00	0.00
New Mountain Partners IV, L.P.	32,800,000	33,990,503	0	33,990,503	80,361	0	33,990,503	80,361	34,070,864	0.00	0.00
Oak Hill Capital Partners II, L.P.	67,500,000	2,400,030	0	2,400,030	0	640,851	2,400,030	-640,851	1,759,179	0.00	0.00
Oak Hill Capital Partners III, L.P.	33,750,000	11,800,686	0	11,800,686	151,660	1,531,091	11,800,686	-1,379,431	10,421,255	0.00	0.00
Oberland Capital Healthcare LP	34,500,000	780,035	0	780,035	3,450,000	0	780,035	3,450,000	4,230,035	0.00	0.00
OCM Opportunities Fund VI b, L.P.	0	0	0	0	0	0	0	0	0	N/A	N/A
Paragon Capital V LP	40,996,800	16,941,017	0	16,941,017	0	3,059,628	16,941,017	-2,847,592	14,093,426	1.31	1.31
Riverside Capital Appreciation Fund VI, L.P.	35,500,000	29,395,408	0	29,395,408	1,156,330	0	29,395,408	1,156,330	30,551,738	0.00	0.00
Rubenstein Properties Fund II	20,800,000	17,021,658	0	17,021,658	0	0	17,021,658	0	17,021,658	0.00	0.00
Secondary Opportunities Fund III, L.P.	25,000,000	19,129,912	0	19,129,912	0	306,466	19,129,912	-306,466	18,823,446	0.00	0.00
Strategic Value Special Situations Fund IV LP	43,300,000	9,047,820	0	9,047,820	2,165,000	43,299	9,047,820	2,121,701	11,169,521	0.00	0.00
Sun Capital Partners IV	0	0	0	0	0	0	0	0	0	N/A	N/A
Taurus Mining Finance Fund LLC	45,100,000	25,634,896	0	25,634,896	0	0	25,634,896	0	25,634,896	0.00	0.00
TCV VI, L.P.	0	0	0	0	0	0	0	0	0	N/A	N/A
Tenaska Power Fund I, L.P.	27,000,000	777,151	0	777,151	0	0	777,151	0	777,151	0.00	0.00
Trition Fund IV, L.P.	28,650,981	20,186,694	-1,801,775	18,384,919	0	1,256,844	20,186,694	-2,818,331	17,368,363	1.36	1.36
VantagePoint Venture Partners 2006, L.P.	27,000,000	7,334,279	0	7,334,279	0	0	7,454,815	0	7,454,815	1.64	1.64
VantagePoint Venture Partners IV, L.P.	36,000,000	2,699,953	0	2,699,953	0	0	2,431,048	0	2,431,048	-9.96	-9.96
Vista Equity Partners I, L.P.	45,000,000	5,396,234	0	5,396,234	0	0	5,396,234	0	5,396,234	0.00	0.00
Vista Equity Partners V, L.P.	27,000,000	21,837,139	0	21,837,139	0	2,170,976	21,837,139	-2,170,976	19,666,163	0.00	0.00
Vista Equity Partners VI LP	25,000,000	27,792,068	0	27,792,068	227,708	0	27,792,068	227,708	28,019,776	0.00	0.00
Walton Street Real Estate Fund VI, LP	36,000,000	14,763,726	0	14,763,726	0	1,126,349	14,763,726	-1,126,349	13,637,377	0.00	0.00
Walton Street Real Estate Fund VII, LP	38,120,000	19,608,452	0	19,608,452	0	4,622,544	19,608,452	-4,622,544	14,985,908	0.00	0.00
Warburg, Pincus Private Equity IX, L.P.	50,000,000	3,010,780	0	3,010,780	0	0	3,010,780	0	3,010,780	0.00	0.00
Warburg, Pincus Private Equity X, L.P.	38,750,000	15,258,623	-1,047,965	14,210,658	0	610,778	15,258,623	-1,658,742	13,599,881	0.00	0.00
Wayzata Opportunities Fund II, L.P.	67,500,000	2,579,017	0	2,579,017	0	1,520,659	2,579,017	-1,520,659	1,058,358	0.00	0.00
Wayzata Opportunities Fund III, L.P.	35,500,000	7,590,733	0	7,590,733	0	763,701	7,590,733	-763,701	6,827,032	0.00	0.00
Wayzata Opportunities Fund, L.P.	67,500,000	0	0	0	0	0	0	0	0	N/A	N/A
White Oak Yield Spectrum Parallel Fund LP	100,000,000	93,952,175	0	93,952,175	666,622	1,778,337	93,952,175	-1,111,715	92,840,460	0.00	0.00
<b>Total: Kentucky Retirement Systems - Pension</b>	<b>3,624,948,795</b>	<b>1,894,863,080</b>	<b>11,858,818</b>	<b>1,906,721,898</b>	<b>49,174,701</b>	<b>75,990,499</b>	<b>1,902,406,658</b>	<b>-13,818,686</b>	<b>1,888,587,972</b>	<b>0.46</b>	<b>0.46</b>
<b>Total Investments:96</b>	<b>3,624,948,795</b>	<b>1,894,863,080</b>	<b>11,858,818</b>	<b>1,906,721,898</b>	<b>49,174,701</b>	<b>75,990,499</b>	<b>1,902,406,658</b>	<b>-13,818,686</b>	<b>1,888,587,972</b>	<b>0.46</b>	<b>0.46</b>

<sup>1</sup> Calculation follows the "Nominalize Short Term IRR Values" preference

## ADJUSTED ENDING VALUE POINT TO POINT (4/1/2019 - 6/30/2019)

All Portfolio Investments

Base Currency: USD

Investment	Commitment	Beginning Valuation	Adjustments	Beginning Adjusted Valuation	Period Contributions	Period Distributions	Ending Valuation	Adjustments	Ending Adjusted Valuation	IRR <sup>1</sup>	Unann. IRR
<b>Kentucky Retirement Systems - Insurance Fund</b>											
AMERRA Agr Fund I, P	16,200,000	9,242,477	0	9,242,477	0	486,390	8,836,155	0	8,836,155	0.89	0.89
AMERRA- R Agri Holding Company, LP	35,000,000	23,527,825	0	23,527,825	348,259	281,390	23,527,825	66,869	23,594,694	0.00	0.00
A bor Cap a II, L.P.	2,500,000	446,588	0	446,588	0	505,380	446,588	-505,380	-58,793	0.00	0.00
A cano KRS Fund , L P	4,000,000	2,872,391	0	2,872,391	0	74,981	2,812,000	0	2,812,000	0.52	0.52
Ares Special Situations Fund IV, L.P.	13,808,000	10,597,645	0	10,597,645	1,093,703	0	10,597,645	1,093,703	11,691,348	0.00	0.00
Avenue Spec al Situa ions Fund V, L.P.	7,500,000	0	-10,266	-10,266	0	0	0	-10,266	-10,266	0.00	0.00
Barings Real Estate European Value Add I SCSp	51,246,000	N/A	12,795,360	12,795,360	1,352,988	0	N/A	14,345,304	14,345,304	1.40	1.40
Bay Hi Is Cap tal I, L.P	7,500,000	2,841,169	-226,000	2,615,169	0	15,500	2,841,169	-241,500	2,599,669	0.00	0.00
Bay Hi Is Cap tal II, L.P	48,750,000	52,666,881	1,891,458	54,558,339	542,205	2,587,565	52,666,881	-153,902	52,512,979	0.00	0.00
Bay Hi Is Emerg ng Par ners II LP	5,000,000	8,850,702	-722,500	8,128,202	48,025	25,525	8,850,702	-700,000	8,150,702	0.00	0.00
Bay Hi Is Emerg ng Par ners II-B LP	5,000,000	6,986,338	-572,500	6,413,838	0	23,500	6,986,338	-596,000	6,390,338	0.00	0.00
BDCM Oppo tunity Fund IV, L.P.	24,420,000	23,436,611	0	23,436,611	107,716	0	23,436,611	107,716	23,544,327	0.00	0.00
Blackstone Capital Partners V, L.P.	12,414,403	640,188	0	640,188	0	26,741	607,844	0	607,844	-0.90	-0.90
Blacks one Capital Par ners VI, L.P.	40,000,000	34,980,875	0	34,980,875	592,498	337,478	34,545,932	0	34,545,932	-1.96	-1.96
BSP Private Credit Fund	50,000,000	24,746,169	0	24,746,169	3,300,330	518,522	24,746,169	2,781,808	27,527,977	0.00	0.00
BTG Pactualrazil Timberland Fund I	15,500,000	10,792,505	0	10,792,505	0	0	10,792,505	0	10,792,505	0.00	0.00
Camelot Oppor unitie Fund, L.P.	2,600,000	822,908	0	822,908	0	0	822,908	0	822,908	0.00	0.00
Cerbe us KR Levered Loan Opportunities Fund, L.P.	37,500,000	38,533,584	0	38,533,584	0	0	39,462,503	0	39,462,503	2.41	2.41
Columbia Cap al Equ ty Partners IV, L.P.	3,000,000	425,236	0	425,236	0	0	419,640	0	419,640	-1.32	-1.32
C estv ew Pa tners II, L.P.	7,500,000	3,544,053	0	3,544,053	0	0	3,544,053	0	3,544,053	0.00	0.00
C estv ew Pa tners II, .P.	21,000,000	15,842,969	0	15,842,969	816,322	201,604	15,842,969	614,718	16,457,687	0.00	0.00
CVC Eu opean Equity Partners VI, L.P.	13,779,708	14,029,048	-249,127	13,779,921	0	268,451	14,029,048	-321,836	13,707,212	1.42	1.42
DAG Ventures II, L.P.	3,000,000	484,453	0	484,453	0	0	484,453	0	484,453	0.00	0.00
DAG Ventures I I, .P	3,000,000	331,817	0	331,817	0	25,564	331,817	-25,564	306,253	0.00	0.00
DAG Ventures IV, L.P.	10,000,000	7,186,517	0	7,186,517	0	853,057	7,186,517	-853,057	6,333,460	0.00	0.00
DAG Ventures V, L.P	7,000,000	26,238,637	0	26,238,637	0	1,548,918	26,238,637	-1,548,918	24,689,719	0.00	0.00
DCM VI, L P	1,500,000	1,305,405	0	1,305,405	0	0	1,305,405	0	1,305,405	0.00	0.00
DivcoWest Fund IV	9,200,000	1,989,853	0	1,989,853	0	452,412	1,989,853	-452,412	1,537,441	0.00	0.00
Essex Woodlands Fund VIII, L.P.	5,000,000	2,662,619	0	2,662,619	0	0	2,662,619	0	2,662,619	0.00	0.00
Fundamen al Partners III LP	30,000,000	17,052,542	0	17,052,542	0	453,172	17,447,617	0	17,447,617	4.98	4.98
Green Equ ty Investo s IV, L.P.	7,500,000	68,214	0	68,214	0	0	66,399	0	66,399	-2.66	-2.66
Green Equity Investors V, L.P.	10,000,000	5,832,639	0	5,832,639	0	630,579	5,082,396	0	5,082,396	-2.08	-2.08
Green Equ ty Investo s VI, L.P.	28,000,000	30,252,455	0	30,252,455	0	1,338,309	30,252,455	-1,338,309	28,914,146	0.00	0.00
Green Equ ty Investo s VII LP	25,000,000	13,927,525	0	13,927,525	2,048,467	0	17,214,359	0	17,214,359	8.02	8.02
Green eld Acquisi ion Partners VI, L.P.	16,700,000	1,859,362	0	1,859,362	0	740,989	1,859,362	-740,989	1,118,373	0.00	0.00

<sup>1</sup> Calculation follows the "Nominalize Short Term IRR Values" preference

## ADJUSTED ENDING VALUE POINT TO POINT (4/1/2019 - 6/30/2019)

All Portfolio Investments

Base Currency: USD

Investment	Commitment	Beginning Valuation	Adjustments	Beginning Adjusted Valuation	Period Contributions	Period Distributions	Ending Valuation	Adjustments	Ending Adjusted Valuation	IRR <sup>1</sup>	Unann. IRR
<b>Kentucky Retirement Systems - Insurance Fund</b>											
Greenfield Acquisition Partners VII, L.P.	12,200,000	10,419,806	0	10,419,806	0	1,822,599	10,419,806	-1,822,599	8,597,207	0.00	0.00
GTCR Fund IX-A, L.P.	7,000,000	15,363	0	15,363	0	0	15,363	0	15,363	0.00	0.00
H.I.G. BioVentures II, L.P.	11,500,000	11,735,943	0	11,735,943	673,460	0	11,735,943	673,460	12,409,403	0.00	0.00
H.I.G. Capital Partner V, L.P.	6,900,000	6,030,820	0	6,030,820	411,064	181,424	6,279,279	0	6,279,279	0.30	0.30
H.I.G. Ventures I, L.P.	2,000,000	668,892	0	668,892	0	0	668,892	0	668,892	0.00	0.00
H&F Special LP	1,794,672	1,911,147	0	1,911,147	0	0	1,911,147	0	1,911,147	0.00	0.00
Harvest Partners V, L.P.	4,000,000	665,938	0	665,938	0	0	665,938	0	665,938	0.00	0.00
Harvest Partners VI, L.P.	11,600,000	5,792,354	0	5,792,354	7,822	319,547	5,792,354	-311,725	5,480,629	0.00	0.00
Harvest Partners VII, L.P.	20,000,000	12,550,424	0	12,550,424	3,973,020	379,083	12,550,424	3,593,937	16,144,361	0.00	0.00
Hellman and Friedman Capital Partners VI, L.P.	7,500,000	470,477	0	470,477	0	49,250	470,477	-49,250	421,227	0.00	0.00
Horsley Bridge Internal Fund V, L.P.	5,000,000	8,707,389	0	8,707,389	0	149,669	8,707,389	-149,669	8,557,720	0.00	0.00
Institutional Venture Partners XI, L.P.	1,500,000	0	0	0	0	0	0	0	0	N/A	N/A
Institutional Venture Partners XII, L.P.	3,000,000	759,494	0	759,494	0	0	759,494	0	759,494	0.00	0.00
JW Childs Equity Partners III, L.P.	4,000,000	86	0	86	0	0	86	0	86	0.00	0.00
Kayne Anderson Energy Fund VII LP	50,000,000	42,502,735	0	42,502,735	500,000	0	42,502,735	500,000	43,002,735	0.00	0.00
KCP IV Co-Invest	9,269,832	4,776,944	-84,829	4,692,115	0	1,616,599	4,776,944	-1,655,480	3,121,464	1.21	1.21
Keyhaven Capital Partners Fund III, L.P.	3,188,640	2,845,767	-169,135	2,676,631	15,306	449,711	2,845,767	-569,089	2,276,678	1.35	1.35
Keyhaven Capital Partners IV LP	9,269,832	6,131,901	-108,890	6,023,011	177,665	3,252,709	6,131,901	-3,115,488	3,016,413	1.24	1.24
Levine Lichtman Capital Partners V, L.P.	24,000,000	20,804,682	0	20,804,682	0	586,979	20,804,682	-586,979	20,217,703	0.00	0.00
Levine Lichtman Capital Partners VI LP	37,500,000	9,710,696	0	9,710,696	3,466,596	77,092	9,710,696	3,389,504	13,100,200	0.00	0.00
Lubert Adler VII	15,250,000	13,040,321	0	13,040,321	0	0	13,040,321	0	13,040,321	0.00	0.00
Lubert-Adler Real Estate Fund VII-B LP	15,750,000	8,802,497	0	8,802,497	0	0	8,802,497	0	8,802,497	0.00	0.00
Magentar MPE Energy Opportunities Fund II LLC	12,500,000	9,102,482	0	9,102,482	2,731,470	65,346	12,067,996	0	12,067,996	2.75	2.75
MatlinPatter on Global Opportunities Partners	5,000,000	0	0	0	0	0	0	0	0	N/A	N/A
MatlinPatter on Global Opportunities Partners II	5,000,000	148,687	0	148,687	0	0	148,687	0	148,687	0.00	0.00
MatlinPatter on Global Opportunities Partners III	5,000,000	1,428,349	0	1,428,349	0	0	1,428,349	0	1,428,349	0.00	0.00
Merit Merit Fund IV, L.P.	3,000,000	294,877	0	294,877	0	218,604	294,877	-218,604	76,273	0.00	0.00
Mesa West Core Lending Fund, LP	29,600,000	37,154,842	0	37,154,842	0	0	37,154,842	0	37,154,842	0.00	0.00
Mesa West Real Estate Income Fund II	9,999,999	0	0	0	0	0	0	0	0	N/A	N/A
Mesa West Real Estate Income Fund IV LP	14,000,000	4,502,753	-141,168	4,361,585	1,944,444	72,315	4,502,753	1,730,961	6,233,714	0.00	0.00
MHR Institutional Partners III, L.P.	4,000,000	1,490,150	0	1,490,150	0	0	1,403,542	0	1,403,542	-5.81	-5.81
Mill Road Capital, L.P.	3,000,000	1,044,059	0	1,044,059	0	0	1,044,059	0	1,044,059	0.00	0.00

<sup>1</sup> Calculation follows the "Nominalize Short Term IRR Values" preference

## ADJUSTED ENDING VALUE POINT TO POINT (4/1/2019 - 6/30/2019)

All Portfolio Investments

Base Currency: USD

Investment	Commitment	Beginning Valuation	Adjustments	Beginning Adjusted Valuation	Period Contributions	Period Distributions	Ending Valuation	Adjustments	Ending Adjusted Valuation	IRR <sup>1</sup>	Unann. IRR
<b>Kentucky Retirement Systems - Insurance Fund</b>											
New Mountain Partners II, L.P.	5,000,000	71,991	0	71,991	0	0	71,991	0	71,991	0.00	0.00
New Mountain Partners III, L.P.	7,500,000	5,048,116	0	5,048,116	0	0	5,048,116	0	5,048,116	0.00	0.00
New Mountain Partners IV, L.P.	17,200,000	17,824,295	0	17,824,295	42,141	0	17,824,295	42,141	17,866,436	0.00	0.00
Oak Hill Capital Partners II, L.P.	7,500,000	266,092	0	266,092	0	71,206	266,092	-71,206	194,886	0.00	0.00
Oak Hill Capital Partners III, L.P.	12,500,000	6,543,355	-2,047,536	4,495,819	56,170	567,071	6,543,355	-2,558,436	3,984,919	0.00	0.00
Oberland Capital Healthcare LP	15,500,000	507,027	-438,474	68,553	1,550,000	0	507,027	1,111,526	1,618,553	0.00	0.00
OCM Opportunities Fund VI b, L.P.	7,500,000	214,214	-31,379	182,835	3	21,743	214,214	-53,119	161,095	0.00	0.00
Patron Capital LP	15,943,200	6,588,382	0	6,588,382	0	1,189,893	6,588,382	-1,107,432	5,480,950	1.31	1.31
Reverend Capital Appreciation Fund VI, L.P.	18,712,500	14,800,519	40,669	14,841,188	609,514	0	14,800,519	650,183	15,450,702	0.00	0.00
Rubenstein Properties Fund II	9,200,000	7,528,810	0	7,528,810	0	0	7,528,810	0	7,528,810	0.00	0.00
Secondary Opportunities Fund III, L.P.	75,000,000	57,389,738	0	57,389,738	0	919,402	57,389,738	-919,402	56,470,336	0.00	0.00
Strategic Value Special Situations Fund IV LP	21,700,000	4,534,366	0	4,534,366	1,085,000	21,699	4,534,366	1,063,301	5,597,667	0.00	0.00
Sun Capital Partners IV	2,000,000	298,527	0	298,527	0	0	298,527	0	298,527	0.00	0.00
Taurus Mining Finance Fund LLC	19,900,000	11,311,185	0	11,311,185	0	0	11,311,185	0	11,311,185	0.00	0.00
TCV V, L.P.	2,500,000	553,679	0	553,679	0	0	553,679	0	553,679	0.00	0.00
Tenaska Power Fund II, L.P.	3,000,000	86,352	0	86,352	0	0	86,352	0	86,352	0.00	0.00
Titon Fund IV, LP	14,740,627	10,640,844	-949,754	9,691,090	0	662,510	10,640,844	-1,485,603	9,155,241	1.36	1.36
VantagePoint Venture Partners 2006, L.P.	3,000,000	814,920	0	814,920	0	0	814,920	0	814,920	0.00	0.00
VantagePoint Venture Partners IV, L.P.	4,000,000	269,995	0	269,995	0	0	269,995	0	269,995	0.00	0.00
Vista Equity Partners III, L.P.	5,000,000	599,581	0	599,581	0	0	599,581	0	599,581	0.00	0.00
Vista Equity Partners IV, L.P.	23,000,000	18,602,003	0	18,602,003	0	1,849,346	18,602,003	-1,849,346	16,752,657	0.00	0.00
Vista Equity Partners VI LP	25,000,000	27,792,068	0	27,792,068	227,708	0	27,792,068	227,708	28,019,776	0.00	0.00
Walton Street Real Estate Fund VI, LP	4,000,000	1,640,414	0	1,640,414	0	125,150	1,640,414	-125,150	1,515,264	0.00	0.00
Walton Street Real Estate Fund VII, LP	16,755,000	8,618,563	0	8,618,563	0	2,031,761	8,618,563	-2,031,761	6,586,802	0.00	0.00
Warburg, Pincus Private Equity IX, L.P.	10,000,000	602,157	0	602,157	0	0	602,157	0	602,157	0.00	0.00
Warburg, Pincus Private Equity X, L.P.	7,500,000	2,953,300	-202,832	2,750,468	0	118,215	2,953,300	-321,047	2,632,253	0.00	0.00
Wayzata Opportunities Fund II, L.P.	7,500,000	286,558	0	286,558	0	168,962	286,558	-168,962	117,596	0.00	0.00
Wayzata Opportunities Fund III, L.P.	18,712,500	4,001,171	0	4,001,171	0	402,556	4,001,171	-402,556	3,598,615	0.00	0.00
Wayzata Opportunity Fund, L.P.	7,500,000	0	0	0	0	0	0	0	0	N/A	N/A
White Oak Yield Spectrum Parallel Fund LP	50,000,000	46,976,087	0	46,976,087	333,311	889,169	46,976,087	-555,858	46,420,229	0.00	0.00
<b>Total: Kentucky Retirement Systems - Insur</b>	<b>1,370,804,913</b>	<b>875,892,382</b>	<b>8,773,097</b>	<b>884,665,479</b>	<b>28,055,207</b>	<b>29,675,637</b>	<b>881,938,921</b>	<b>4,375,945</b>	<b>886,314,866</b>	<b>0.37</b>	<b>0.37</b>
<b>Total Investments:97</b>	<b>1,370,804,913</b>	<b>875,892,382</b>	<b>8,773,097</b>	<b>884,665,479</b>	<b>28,055,207</b>	<b>29,675,637</b>	<b>881,938,921</b>	<b>4,375,945</b>	<b>886,314,866</b>	<b>0.37</b>	<b>0.37</b>

<sup>1</sup> Calculation follows the "Nominalize Short Term IRR Values" preference

KENTUCKY RETIREMENT SYSTEMS						
Investment Fees and Expenses						
For the Year Ended June 30, 2019						
Pension						
	2019			2018		
	FYTD Fees	% of MV	Market Value	FYTD Fees	% of MV	Market Value
<b>Absolute Return</b>	\$ 3,073,956	1.41%	\$ 218,572,402	\$ 13,088,192	1.87%	\$ 701,704,752
Investment Advisory Fees	2,457,273			6,646,140		
Performance Fees	616,683			6,442,052		
Miscellaneous Fees and Expenses						
<b>Core Fixed Income</b>	1,811,867	0.08%	2,286,911,690	13,839,779	0.37%	3,714,668,216
Investment Advisory Fees	1,793,846			12,355,376		
Performance Fees				1,321,316		
Miscellaneous Fees and Expenses	18,021			163,087		Fixed Income- not yet split
<b>Opportunistic</b>	907,773	0.77%	117,663,130			
Investment Advisory Fees	-					
Performance Fees	827,423					
Miscellaneous Fees and Expenses	80,350					
<b>Private Equity</b>	26,825,366	2.27%	1,181,283,403	35,132,819	2.89%	1,214,463,846
Investment Advisory Fees	6,627,206			8,784,940		
Performance Fees	15,674,419			22,327,873		
Miscellaneous Fees and Expenses	4,523,741			4,020,006		
<b>Public Equity</b>	8,805,525	0.18%	4,882,795,433	10,710,729	0.23%	4,699,762,553
Investment Advisory Fees	8,590,246			10,446,361		
Miscellaneous Fees and Expenses	215,279			264,368		
<b>Real Estate</b>	17,028,306	3.61%	472,326,059	9,553,328	2.23%	428,489,599
Investment Advisory Fees	4,580,575			5,211,366		
Performance Fees	9,886,355			2,617,702		
Miscellaneous Fees and Expenses	2,561,375			1,724,260		
<b>Real Return</b>	7,258,215	0.66%	1,105,913,926	6,885,938	0.65%	1,057,017,333
Investment Advisory Fees	4,711,726			5,510,645		
Performance Fees	1,205,163			662,339		
Miscellaneous Fees and Expenses	1,341,326			712,954		
<b>Speciality Credit Fixed Income</b>	17,460,045	0.87%	2,009,209,976			
Investment Advisory Fees	11,171,566					
Performance Fees	5,937,584					
Miscellaneous Fees and Expenses	350,895					
<b>Cash</b>	3,139,165	0.67%	471,056,912	3,386,154		453,519,497
Consulting	582,999			1,384,751		
Trustee	1,228,533			1,299,473		
Miscellaneous Fees and Expenses	1,327,633			701,930		
<b>Total Investment Mgmt Fees</b>	<b>86,310,220</b>	<b>0.68%</b>	<b>12,745,732,930</b>	<b>\$ 92,596,939</b>	<b>0.75%</b>	<b>12,269,625,796</b>

KENTUCKY RETIREMENT SYSTEMS						
Investment Fees and Expenses						
For the Year Ended June 30, 2019						
Insurance						
	2019			2018		
	FYTD Fees	% of MV	Market Value	FYTD Fees	% of MV	Market Value
<b>Absolute Return</b>	\$ 1,255,470	1.40%	\$ 89,589,819	\$ 5,368,803	1.88%	\$ 286,003,081
Investment Advisory Fees	997,088			2,641,746		
Performance Fees	258,382			2,727,057		
Miscellaneous Fees and Expenses						
<b>Core Fixed Income</b>	724,593	0.09%	843,964,873	5,164,714	0.35%	1,484,295,753
Investment Advisory Fees	717,336			4,571,006		
Performance Fees	-			523,723		
Miscellaneous Fees and Expenses	7,257			69,985		Fixed Income - not yet split
<b>Opportunistic</b>	462,242	0.77%	59,914,790			
Investment Advisory Fees	-					
Performance Fees	421,327					
Miscellaneous Fees and Expenses	40,915					
<b>Private Equity</b>	15,356,945	2.70%	567,840,802	20,111,985	3.81%	528,192,941
Investment Advisory Fees	4,164,944			5,033,481		
Performance Fees	8,548,773			13,258,639		
Miscellaneous Fees and Expenses	2,643,228			1,819,865		
<b>Public Equity</b>	3,808,577	0.18%	2,153,059,075	4,659,026	0.23%	2,064,163,034
Investment Advisory Fees	3,714,017			4,543,983		
Miscellaneous Fees and Expenses	94,560			115,043		
<b>Real Estate</b>	6,926,250	3.52%	197,044,207	6,007,325	3.37%	178,369,303
Investment Advisory Fees	2,078,674			2,193,777		
Performance Fees	3,978,237			1,073,864		
Miscellaneous Fees and Expenses	869,339			2,739,684		
<b>Real Return</b>	3,191,905	0.69%	465,245,582	2,939,540	0.66%	445,342,754
Investment Advisory Fees	2,103,059			1,692,101		
Performance Fees	535,669			924,386		
Miscellaneous Fees and Expenses	553,177			323,053		
<b>Speciality Credit Fixed Income</b>	7,159,131	0.86%	828,664,290			
Investment Advisory Fees	4,551,993					
Performance Fees	2,430,092					
Miscellaneous Fees and Expenses	177,045					
<b>Cash</b>	1,522,081	0.64%	238,177,706	1,665,442	1.18%	141,276,957
Consulting	245,236			568,362		
Trustee	832,226			845,776		
Miscellaneous Fees and Expenses	444,619			251,304		
<b>Total Investment Mgmt Fees</b>	<b>\$ 40,407,192</b>	<b>0.74%</b>	<b>5,443,501,144</b>	<b>\$ 45,916,835</b>	<b>0.90%</b>	<b>5,127,643,823</b>

Investment Committee Meeting- August 27, 2019 - Standard Reports

Date	Other Party	Asset Class	Reason for Meeting	Location	Travel Location	KRS Attendees	Individuals Met With
07-Jan-19	Money360	Fixed Income, Other	Prospect	KRS Offices	Louisville	Andy Kiehl, Other KRS Employee, Rich Robben	Evan Gentry, Dan Vetter
09-Jan-19	State Street	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Scott Hockman
10-Jan-19	Russell	Absolute Return, Equity, Fixed Income, Private Equity, Real Estate, Real Return	Manager Update	KRS Offices	Louisville	Rich Robben	Graham Seagraves
15-Jan-19	Alcentra	Other	Manager Update	KRS Offices	Louisville	Rich Robben	Thorne Gregory
15-Jan-19	First State Investments	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Randy Paas, Lawrence Patrowitz
15-Jan-19	Hudson Structured	Other	Prospect	KRS Offices	Louisville	Other KRS Employee, Rich Robben	Michael Millette
17-Jan-19	Monroe Capital	Fixed Income	Prospect	Other Parties' Offices	Chicago, IL	Rich Robben	Jon Olsen and Team
18-Jan-19	Adams Street Partners	Fixed Income	Prospect	Other Parties' Offices	Chicago, IL	Rich Robben	Gary Fencik, Bill Sacher
18-Jan-19	Lincolnshire	Private Equity	Prospect	KRS Offices	Louisville	Other KRS Employee	George Henry, Phil Kim
22-Jan-19	IFM Investors	Fixed Income	Prospect	KRS Offices	Louisville	Andy Kiehl, Rich Robben	Rena Pulido
23-Jan-19	INVESCO	Fixed Income	Prospect	KRS Offices	Louisville	Rich Robben	Elliot Honaker
25-Jan-19	Russell	Equity	Prospect	KRS Offices	Louisville	Andy Kiehl, Joe Gilbert, Other KRS Employee, Rich Robben	Graham Seagraves
25-Jan-19	Marathon	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Charlie Short
25-Jan-19	Russell	Other	Manager Update	KRS Offices	Louisville	Rich Robben	Graham Seagraves
28-Jan-19	Money 360	Fixed Income	On-site Due Diligence	Other Parties' Offices	Newport Beach, CA	Rich Robben	Evan Gentry, Dan Vetter
28-Jan-19	Putnam	Other	Prospect	KRS Offices	Louisville	Andy Kiehl	Mike Meehan
29-Jan-19	PIMCO	Fixed Income	Manager Update	Other Parties' Offices	Newport Beach, CA	Rich Robben	Iggle Galaz, Priya Bishen
30-Jan-19	Governors Lane	Other	Manager Update	KRS Offices	Louisville	Other KRS Employee	Andrew Barnett
30-Jan-19	ILS	Other	Prospect	KRS Offices	Louisville	Other KRS Employee	Tom Libassi, Armand Foy
05-Feb-19	Barings Real Estate	Real Estate	Manager Update	KRS Offices	Louisville	Andy Kiehl	Kevin Ryan, Valeria Falcone
11-Feb-19	Lord Abbett	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Sam Scher
12-Feb-19	Fundamental Advisors	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Richard Beecher
13-Feb-19	JP Morgan	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Jeff Fox, Kathryn Pasqualone
14-Feb-19	Triton	Private Equity	Manager Update	KRS Offices	Louisville	Other KRS Employee	Michael Klein
15-Feb-19	Wilshire	Absolute Return, Equity, Fixed Income, Private Equity, Real Estate, Real Return	Manager Update	Other Parties' Offices	Pittsburgh, PA	Rich Robben	David Lindberg
20-Feb-19	Loomis Sayles & Co	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	John Meyer
20-Feb-19	Altrinic	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	David McBain
20-Feb-19	Crow Real Estate	Real Estate	Prospect	KRS Offices	Louisville	Andy Kiehl	Matt Holberton
26-Feb-19	PGIM	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Kwandwo Acheampong
01-Mar-19	American Century Investments	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Walt McGee
05-Mar-19	Marathon	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Charlie Short, Jeff Jacobs
06-Mar-19	Alcentra	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Thorne Gregory
06-Mar-19	Causway Capital	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Mark Osterkamp
07-Mar-19	Royce	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Steve Clark, Steve Lipper
11-Mar-19	Marathon	Fixed Income	Other	Other Parties' Offices	New York, NY	Other KRS Employee, Rich Robben	Entire Team

Investment Committee Meeting- August 27, 2019 - Standard Reports

Date	Other Party	Asset Class	Reason for Meeting	Location	Travel Location	KRS Attendees	Individuals Met With
12-Mar-19	Black Diamond	Other, Private Equity	Manager Update	Other Parties' Offices	Greenwich, CT	Other KRS Employee	Entire Team
12-Mar-19	Cerberus	Fixed Income	Manager Update	Other Parties' Offices	New York, NY	Rich Robben	Keith Reed
12-Mar-19	Panagora Asset Management	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	William Bardeen
12-Mar-19	Ohio Institutional Forum	General	Investor Conference	Other	Ohio	Andy Kiehl, Rich Robben	Multiple
14-Mar-19	Aristotle	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Keri Hepburn, Aylon Ben-Shlomo
19-Mar-19	JO Hambro Capital	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Luke Bridges
20-Mar-19	Investec	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Ashley Wilson
21-Mar-19	Baron Capital	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Meeta Singal
28-Mar-19	Abel Noser	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Ian Leverich
02-Apr-19	Epoch Investment Partners	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Greg Shields
03-Apr-19	FTSE Russell	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Sara Wilson
03-Apr-19	Hayfin	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Rob Kneip
09-Apr-19	Manulife	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Mark Flinn
09-Apr-19	Pzena Investment Management	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Valerie Arnold
09-Apr-19	Doubleline Capital	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Fred Klausung
10-Apr-19	Amp Capital	Other	Prospect	KRS Offices	Louisville	Andy Kiehl	Craig Watkins
12-Apr-19	Capital Spring	Fixed Income, Other	On-site Due Diligence	Other Parties' Offices	Nashville, TN	Other KRS Employee, Rich Robben	Richard Fitzgerald, Wade Daniel
16-Apr-19	NISA	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Greg Johnson
17-Apr-19	Cadence Capital	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Charles Koeniger
23-Apr-19	Russell	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Greg Nordquist
23-Apr-19	Madison Investments	Fixed Income	Introduction	KRS Offices	Louisville	Rich Robben	Yichao Marks
24-Apr-19	Cerberus	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Keith Reed, Kevin McLeod
24-Apr-19	Kopernik	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Jason Barger
25-Apr-19	Fort Washington	Fixed Income	Introduction	KRS Offices	Louisville	Rich Robben	Joe Don Cole
25-Apr-19	Shenkman	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Jessica Donofno
29-Apr-19	Blackrock	Absolute Return, Equity, Fixed Income, Private Equity, Real Estate, Real Return	Manager Update	KRS Offices	Louisville	Rich Robben	Don Perault
30-Apr-19	Eagle	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Jordan Loh
01-May-19	Morgan Stanley	Real Return	Prospect	KRS Offices	Louisville	Andy Kiehl	Mike Chambers
01-May-19	Waterfall-Victoria	Other	Manager Update	KRS Offices	Louisville	Andy Kiehl, Other KRS Employee	Bruce Rodio
08-May-19	IFM Investors	Fixed Income	Other	Other Parties' Offices	New York, NY	Rich Robben	Multiple
08-May-19	Hayfin	Fixed Income	Manager Update	Other Parties' Offices	New York, NY	Rich Robben	Rob Knelp
09-May-19	Blackrock	Private Equity	Introduction	Other Parties' Offices	New York, NY	Rich Robben	Multiple
09-May-19	Barings Real Estate	Real Estate	Manager Update	KRS Offices	Louisville	Andy Kiehl	Valeria Falcone, Drew Dickey
09-May-19	Benefit Street Partners	Fixed Income	Manager Update	Other Parties' Offices	New York, NY	Rich Robben	Multiple
13-May-19	White Oak Real Estate	Real Estate	Prospect	KRS Offices	Louisville	Andy Kiehl	Andy Carr, Mike
14-May-19	Brookfield	Other	Prospect	KRS Offices	Louisville	Andy Kiehl	Kate Bizga, Caroline Fitzpatrick
15-May-19	FPA Multi Family	Real Estate	Prospect	KRS Offices	Louisville	Andy Kiehl	Stanley Kim
17-May-19	Demensional Advisors	Fixed Income	Introduction	KRS Offices	Louisville	Rich Robben	Graham Dorland
20-May-19	Seer Capital	Other	Prospect	KRS Offices	Louisville	Andy Kiehl	Andrew Peisch
21-May-19	Arrowmark	Other	Manager Update	KRS Offices	Louisville	Andy Kiehl	Greth Lester, Kaelyn Abrell

Investment Committee Meeting- August 27, 2019 - Standard Reports

Date	Other Party	Asset Class	Reason for Meeting	Location	Travel Location	KRS Attendees	Individuals Met With
21-May-19	Carin	Other	Introduction	Other Parties' Offices	Chicago, IL	Rich Robben	Zach Farmer
21-May-19	Adams Street Partners	Other	Manager Update	Other Parties' Offices	Chicago, IL	Rich Robben	Gary Fencik, Bill Sacher
23-May-19	Met Life	Other	Prospect	KRS Offices	Louisville	Andy Kiehl	Tom Metzler
23-May-19	Parametric	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Bryan Sandvig
23-May-19	UBS Asset Management	Other	Prospect	KRS Offices	Louisville	Andy Kiehl	Nicole Jenkins
29-May-19	Conner, Clark & Lunn	Equity	Prospect	KRS Offices	Frankfort	Andy Kiehl, Joe Gilbert, Other KRS Employee, Rich Robben	Steve Huang, Stephen Reynolds
29-May-19	Jacobs Levy	Equity	Prospect	KRS Offices	Frankfort	Andy Kiehl, Joe Gilbert, Other KRS Employee, Rich Robben	Peter Lehrer, David Sparacino
29-May-19	Baillie Gifford	Equity	Prospect	KRS Offices	Frankfort	Andy Kiehl, Joe Gilbert, Other KRS Employee, Rich Robben	Andrew Stobart, Ryan Fitzpatrick
29-May-19	JP Morgan Asset Management	Equity	Prospect	KRS Offices	Frankfort	Andy Kiehl, Joe Gilbert, Other KRS Employee, Rich Robben	Leon Eidelman, Tom Leventhorpe, Jeff Fox
30-May-19	Kayne Anderson	Equity	Prospect	KRS Offices	Frankfort	Andy Kiehl, Joe Gilbert, Other KRS Employee, Rich Robben	Todd Beiley, Stephen Rigali
30-May-19	Next Century Growth	Equity	Prospect	KRS Offices	Frankfort	Andy Kiehl, Joe Gilbert, Other KRS Employee, Rich Robben	Thomas Press, Robert Scott, Peter Capouch
30-May-19	Lord Abbett	Equity	Prospect	KRS Offices	Frankfort	Andy Kiehl, Joe Gilbert, Other KRS Employee, Rich Robben	Matt DeCicco, Brian Foerster, Samantha Scher
30-May-19	Pzena Investment Management	Equity	Prospect	KRS Offices	Frankfort	Andy Kiehl, Joe Gilbert, Other KRS Employee, Rich Robben	Allison Fisch, Valerie Arnold
04-Jun-19	Blue Grotto Capital	Other	Prospect	Other Parties' Offices	New York	Other KRS Employee	Ben Gordon
04-Jun-19	Aslan House Capital	Other	Prospect	Other Parties' Offices	New York	Other KRS Employee	Luke Lynch
04-Jun-19	Electron Capital	Other	Prospect	Other Parties' Offices	New York	Other KRS Employee	Jos Shaver, Greg Zaffiro
04-Jun-19	Lodbrok Capital	Other	Prospect	Other Parties' Offices	New York	Other KRS Employee	Mikael Brantberg
04-Jun-19	Hunter Capital	Other	Prospect	Other Parties' Offices	New York	Other KRS Employee	Grant Bowman
04-Jun-19	Luxence Capital	Other	Prospect	Other Parties' Offices	New York	Other KRS Employee	Yoshi Ohira, Winson Tai
04-Jun-19	Oslo Asset Management	Other	Prospect	Other Parties' Offices	New York	Other KRS Employee	Harald Otterhaug
05-Jun-19	Hudson Structured	Other	Prospect	Other Parties' Offices	New York	Other KRS Employee	Entire Team
06-Jun-19	Centerbridge Partners	Other	Introduction	KRS Offices	Louisville	Rich Robben	Jennifer Wilcox
17-Jun-19	Fiera Infrastructure	Other	Prospect	KRS Offices	Louisville	Andy Kiehl	Tom Dion
20-Jun-19	Loomis Sayles & Co	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	John Meyer
20-Jun-19	EAM Investors	Equity	Manager Update	KRS Offices	Frankfort	Joe Gilbert	Frank Hurst
21-Jun-19	Loomis	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	John Mayer
24-Jun-19	Deerpath	Other	Introduction	KRS Offices	Louisville	Rich Robben	John Idle
25-Jun-19	StockBridge	Real Estate	Manager Update	Other Parties' Offices	Chicago	Andy Kiehl	Sol Rasso
26-Jun-19	Aegon Asset Management	Real Estate	Prospect	Other Parties' Offices	Chicago	Andy Kiehl	TF Meagher, Phil McAdams
27-Jun-19	Thornburg	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Tonja Truesdale
27-Jun-19	Marathon	Fixed Income	Manager Update	KRS Offices	Louisville	Rich Robben	Andrew Rabinowitz, Charlie Short, Jeff Jacobs



# KENTUCKY RETIREMENT SYSTEMS

## Investment Division



**DATE** August 27, 2019

**TO:** Members of the Investment Committee

**FROM:** Staff and Consultant

**Subject:** U.S. Micro Cap and Dedicated Emerging Market Searches

NOTE: This serves as a performance update to the memo of the same subject matter provided at the June 18, 2019 Investment Committee Meeting.

### Introduction

Staff and consultant continue to work to build efficiencies into the public equity portfolios, both in terms of access and efficient use of fee dollars. Generally speaking, the KRS U.S. equity portfolio will have a passive tilt in larger cap spaces, and active exposure for higher conviction all cap and small/micro-cap investments. The KRS Non-U.S. equity portfolio will have a greater degree of active management.

### Recommendation

Kentucky Retirement Systems' (KRS) Staff and Wilshire Associates recommend the KRS Investment Committee fund the following allocations ...

- Next Century Growth Investors, LLC – Micro Cap Growth Strategy
  - Initial Funding \$50-85 million (2.5%) with option to grow/add to total of 3.5% of U.S. allocation.
- J.P. Morgan Asset Management Inc. – Global Emerging Markets (GEM) Discovery Strategy
  - Initial Funding \$180 million (5%) with option to grow/add to total of 7% of Non-U.S. allocation.
- Pzena Investment Management, LLC – Emerging Markets Select Value Strategy
  - Initial Funding \$180 million (5%) with option to grow/add to total of 7% of Non-U.S. allocation.
- Transition the remaining balance (post carve-out for funding of new active emerging market mandates) of the BlackRock ACWI-Ex US Index portfolio to the BlackRock World Ex-US Index strategy.

No placement agents have been involved or will be compensated as a result of this recommendation.

### Performance

Next Century Growth Investors, LLC							
As of: 06/30/19	YTD	1 YR	3 YRS	5 YRS	10 YRS	15 YRS	SI
NCG Micro Cap Growth Composite (GR)	31.1	19.2	34.9	19.4	21.3	14.0	17.9
Russell Microcap Growth Index	16.5	-9.8	9.8	4.3	11.9	5.9	8.9
*Inception Date: 01/01/03							

## U.S. Micro Cap and Dedicated Emerging Market Searches – Performance Update 2

J.P. Morgan Asset Management							
As of: 06/30/19	YTD	1 YR	3 YRS	5 YRS	7 YRS	10 YRS	SI
Global Emerging Markets Discovery (GR)	19.7	7.6	15.3	8.0	9.2	12.3	11.8
MSCI Emerging Markets IMI Index	10.1	0.5	10.0	2.3	4.1	5.8	6.2
MSCI Emerging Markets Index	10.6	1.2	10.7	2.5	4.2	5.8	7.1
MSCI Emerging Markets Growth Index	12.3	-2.4	11.2	3.9	5.7	7.6	N/A
*Inception Date: 11/30/97							

Pzena Investment Management, LLC						
As of: 06/30/19	YTD	1 YR	3 YRS	5 YRS	10 YRS	SI
Pzena Emerging Markets Select (GR)	6.8	4.5	13.0	n/a	n/a	10.8
MSCI Emerging Markets Index	10.6	1.2	10.7	n/a	n/a	8.6
MSCI Emerging Markets Value Index	8.9	5.0	10.0	n/a	n/a	7.8
*Inception Date: 11/01/15						
Pzena Emerging Markets Focused (GR)	7.2	3.6	12.9	2.5	7.0	3.3
MSCI Emerging Markets Index	10.6	1.2	10.7	2.5	5.8	1.0
MSCI Emerging Markets Value Index	8.9	5.0	10.0	1.0	4.6	0.5
*Inception Date: 01/01/08						

BlackRock					
As of: 06/30/19	YTD	1 YR	3 YRS	5 YRS	10 YRS
BlackRock ACWI Ex-US	13.8	1.5	9.7	2.4	6.8
MSCI ACWI Ex-US Index	13.6	1.3	9.4	2.2	6.5
BlackRock World Ex-US	15.0	1.7	9.5	2.5	7.2
MSCI World Ex-US Index	14.6	1.3	9.0	2.0	6.8

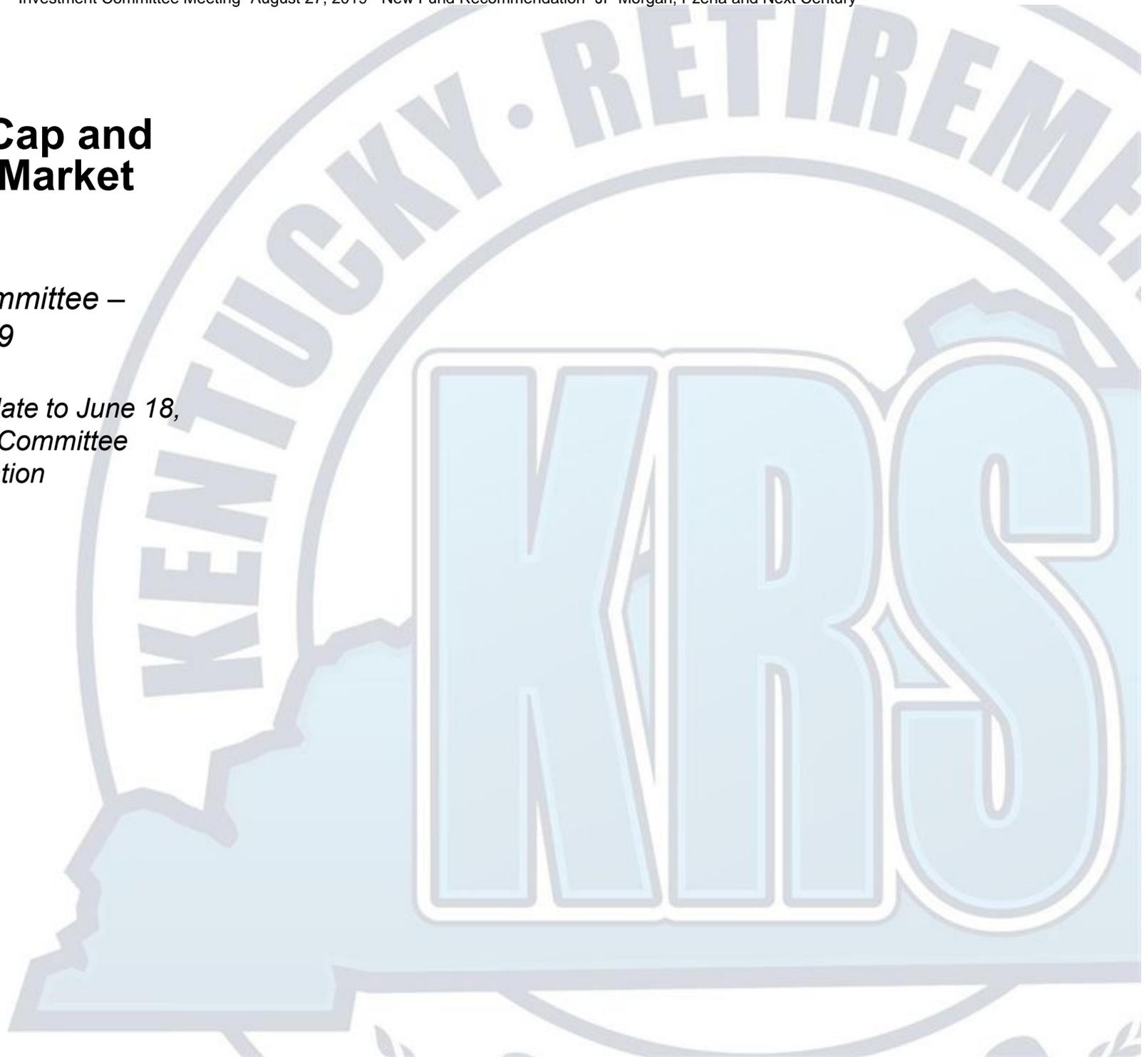
We welcome any comments or questions by the Committee.



# US Small Cap and Emerging Market Search

*Investment Committee –  
August 27, 2019*

*Performance Update to June 18,  
2019 Investment Committee  
Meeting Presentation*



# RECOMMENDATION

- Next Century Growth Investors, LLC – Micro Cap Growth Strategy
  - Initial Funding 2.5% (\$50-85 million) with option to grow/add to total of 3.5% of U.S. allocation.
- J.P. Morgan Asset Management Inc. – Global Emerging Markets (GEM) Discovery Strategy
  - Initial Funding 5% (\$180 million) with option to grow/add to total of 7% of Non-U.S. allocation.
- Pzena Investment Management, LLC – Emerging Markets Select Value Strategy
  - Initial Funding 5% (\$180 million) with option to grow/add to total of 7% of Non-U.S. allocation.
- Transition the remaining balance (post carve-out for funding of new active emerging market mandates) of the BlackRock ACWI-Ex US Index portfolio to the BlackRock World Ex-US Index strategy.

# PERFORMANCE

Next Century Growth Investors, LLC							
As of: 06/30/19	YTD	1 YR	3 YRS	5 YRS	10 YRS	15 YRS	SI
NCG Micro Cap Growth Composite (GR)	31.1	19.2	34.9	19.4	21.3	14.0	17.9
Russell Microcap Growth Index	16.5	-9.8	9.8	4.3	11.9	5.9	8.9
*Inception Date: 01/01/03							

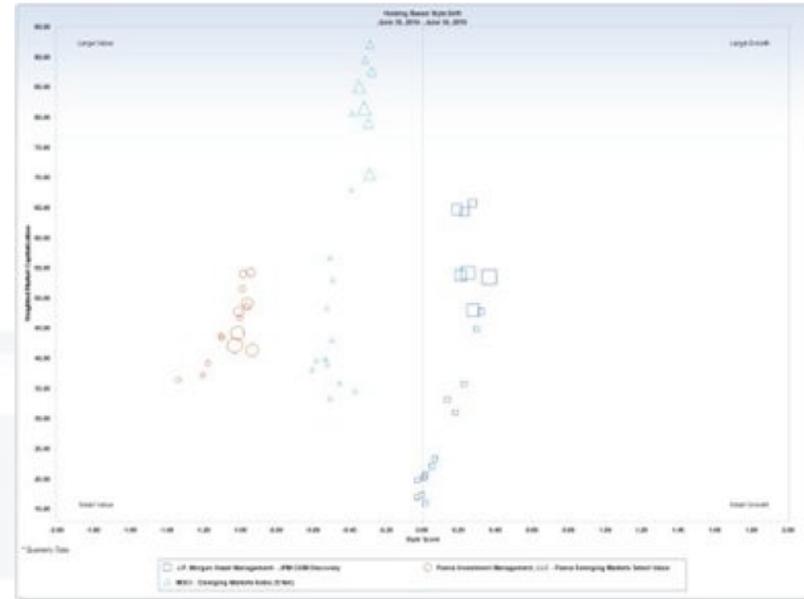
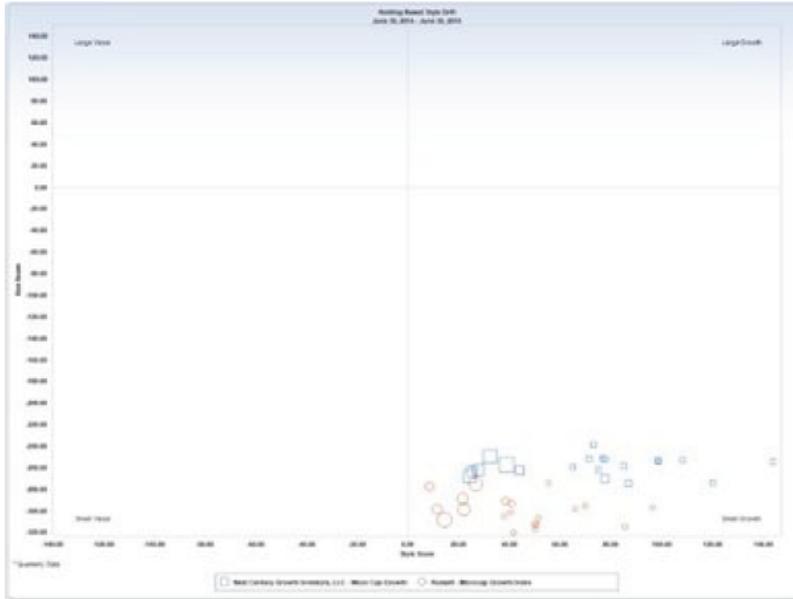
J.P. Morgan Asset Management							
As of: 06/30/19	YTD	1 YR	3 YRS	5 YRS	7 YRS	10 YRS	SI
Global Emerging Markets Discovery (GR)	19.7	7.6	15.3	8.0	9.2	12.3	11.8
MSCI Emerging Markets IMI Index	10.1	0.5	10.0	2.3	4.1	5.8	6.2
MSCI Emerging Markets Index	10.6	1.2	10.7	2.5	4.2	5.8	7.1
MSCI Emerging Markets Growth Index	12.3	-2.4	11.2	3.9	5.7	7.6	N/A
*Inception Date: 11/30/97							

Pzena Investment Management, LLC							
As of: 06/30/19	YTD	1 YR	3 YRS	5 YRS	10 YRS	SI	
Pzena Emerging Markets Select (GR)	6.8	4.5	13.0	n/a	n/a	10.8	
MSCI Emerging Markets Index	10.6	1.2	10.7	n/a	n/a	8.6	
MSCI Emerging Markets Value Index	8.9	5.0	10.0	n/a	n/a	7.8	
*Inception Date: 11/01/15							
Pzena Emerging Markets Focused (GR)	7.2	3.6	12.9	2.5	7.0	3.3	
MSCI Emerging Markets Index	10.6	1.2	10.7	2.5	5.8	1.0	
MSCI Emerging Markets Value Index	8.9	5.0	10.0	1.0	4.6	0.5	
*Inception Date: 01/01/08							

BlackRock						
As of: 06/30/19	YTD	1 YR	3 YRS	5 YRS	10 YRS	
BlackRock ACWI Ex-US	13.8	1.5	9.7	2.4	6.8	
MSCI ACWI Ex-US Index	13.6	1.3	9.4	2.2	6.5	
BlackRock World Ex-US	15.0	1.7	9.5	2.5	7.2	
MSCI World Ex-US Index	14.6	1.3	9.0	2.0	6.8	

# APPENDIX

CHARTS PROVIDED BY WILSHIRE & ASSOCIATES



	BlackRock - MSCI World Index (Ex US) Index Fund	American Century Investment Management, Inc. - Non-U.S. Concentrated Growth	Franklin Templeton Investments - Franklin All Country World ex-U.S. Equity	Lazard Asset Management LLC - International Equity Plus (ACW ex-US)	LSV Asset Management - International Concentrated Value Equity	Northern Trust - NT EMERGING MARKETS SMALL CAP INDEX STRATEGY	J.P. Morgan Asset Management - JPM GEM Discovery	Pzena Investment Management, LLC - Pzena Emerging Markets Focused Value
Correlation								
BlackRock - MSCI World Index (Ex US) Index Fund	1.00							
American Century Investment Management, Inc. - Non-U.S. Concentrated Growth	0.28	1.00						
Franklin Templeton Investments - Franklin All Country World ex-U.S. Equity	0.17	0.53	1.00					
Lazard Asset Management LLC - International Equity Plus (ACW ex-US)	0.36	0.25	0.10	1.00				
LSV Asset Management - International Concentrated Value Equity	0.00	-0.37	-0.17	-0.12	1.00			
Northern Trust - NT World ex US Small Cap Index Equity Strategy	0.22	0.29	0.59	0.15	-0.09	1.00		
J.P. Morgan Asset Management - JPM GEM Discovery	-0.73	-0.10	-0.05	-0.15	-0.18	-0.31	1.00	
Pzena Investment Management, LLC - Pzena Emerging Markets Focused Value	-0.74	-0.48	-0.47	-0.46	0.15	-0.45	0.44	1.00



## KENTUCKY RETIREMENT SYSTEMS

### Investment Division



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**DATE** June 18, 2019

**TO:** Members of the Investment Committee

**FROM:** Staff and Consultant

**Subject:** U.S. Micro Cap and Dedicated Emerging Market Searches

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#### **Recommendation**

Kentucky Retirement Systems' (KRS) Staff and Wilshire Associates recommend the KRS Investment Committee fund an allocation within the U.S. Micro Cap space to be managed by Next Century Growth Investors, LLC pending a successful onsite visit and Wilshire finalizing its manager/product review with a satisfactory outcome.

Further, KRS Staff and Wilshire Associates recommend the KRS Investment Committee fund dedicated emerging market allocations to be managed by J.P. Morgan Asset Management and Pzena Investment Management, LLC pending successful onsite visits.

Finally, funding the new emerging market mandates will require a transition from the BlackRock MSCI ACWI Ex-US Index strategy to the BlackRock MSCI World Ex-US Index strategy.

No placement agents have been involved or will be compensated as a result of this recommendation.

#### **Introduction**

In a continued effort to create greater efficiencies within the structure of the public equity allocation, staff and consultant have worked together to study how KRS accesses different segments of the market. The team completed this exercise with not only an eye towards efficient market access, but also to an efficient allocation of fee dollars. Essentially, the goal was to spend fee dollars where the chances of outperforming the market are greatest, and conserve, if not eliminate, fees in those areas where more difficult to add excess value. U.S. equity markets are viewed as more efficient; however, there are still pockets of inefficiencies that can be exploited, especially as one moves down the capitalization structure. Non-U.S. developed markets are less efficient than their U.S. counter-parts, and emerging markets are even more so.

Generally speaking, the KRS U.S. equity portfolio will have a passive tilt, with that being expressed in the large and mid-cap portions of the allocation, and will seek excess returns for higher conviction all cap and small/micro-cap investments. The KRS Non-U.S. equity portfolio will have a greater degree of active management as the space is less efficient, particularly within the emerging market segment.

This memo serves as a review of the above-mentioned firms and their specific strategies KRS has interest, specifically philosophies and processes; and serves as a recommendation to the KRS Investment Committee to fund these strategies within the public equity allocation.

#### **General Process**

For both searches, staff and consultant employed the same basic process for narrowing the potential candidates down to the finalists in this report. The Wilshire Investment Management database is the starting point for setting the universe of potential ideas. This database is self-populated by external managers and contains a significant amount of information regarding their specific firm and its product(s). Minimum criteria are set in order to cull the potential candidate list down to a more manageable size, regarded as the short list. This criteria includes, but is not limited to, firm and product size, available capacity, performance history, track record length, etc. Staff may add managers to the

## U.S. Micro Cap and Dedicated Emerging Market Searches 2

list that may not have either made it through the initial screen or who may not participate in the database. From this point, an additional cut is made based on additional data including, but not limited to, capture ratios, risk/return profiles, active share, etc. Staff then sent a Request For Information (RFI) to the remaining candidates designed to generate insight into the firm's structure, staffing, product stability, investment team/philosophy/process, and other meaningful data points. Staff and consultant having read the RFI responses narrowed down the candidate list further for onsite presentations and discussions. From there, finalists were selected for presentation to the Investment Committee. KRS staff and consultant will perform onsite interviews with the successful candidates at their offices prior to funding any position.

### Organization Structure and Stability

#### *Next Century Growth Investors, LLC*

Next Century Growth Investors, LLC is a small boutique firm that was founded in 1998. The partnership is headquartered in Minneapolis and is comprised of six investors (all five PMs and a minority outside shareholder). The firm managed approximately \$770 million in U.S. equity strategies at the end of the first quarter. The micro-cap strategy KRS seeks to invest had roughly \$210 million invested at the end of the quarter, and will close the product at \$500 million. With the exception of one partner/portfolio manager who passed away, no portfolio managers have left the firm since its inception.

#### *J.P. Morgan Asset Management Inc.*

J.P. Morgan Investment Management Inc. is an investment advisor under J.P. Morgan Asset Management, and is wholly owned by J.P. Morgan Chase & Company, which is publicly traded on the NYSE. The firm manages approximately \$1.7 trillion in assets, \$480 billion of which are in the public equity markets. The strategy of interest to KRS managed roughly \$1.86 billion at the end of the first quarter, has experienced asset inflows of roughly \$1 billion over the past five years, and has only had outflows of \$34 million. The lead portfolio of the strategy has been in the position for the past seven years.

#### *Pzena Investment Management, LLC*

Pzena Investment Management, LLC is a publicly company traded on the NYSE. Current employees own approximately 55% of the economic interest of the firm and retain 95% of the voting rights. Former directors and employees and the parent holding company own the balance of the outstanding shares. The firm is headquartered in New York and manages approximately \$37.1 billion in assets across a suite of value products across the cap spectrum and geography. The emerging market strategy KRS wishes to invest had approximately \$700 million participating in the strategy as of close March 31, 2019. It should be noted that the strategy only has a 3.5-year track record; however, the strategy utilizes the same philosophy, process, and team as the flagship product, which has an inception of 2008 and assets under management at the end of the first quarter of approximately \$3.9 billion. There have been no changes at the portfolio manager level since inception.

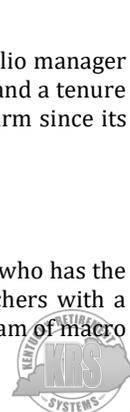
### Investment Team

#### *Next Century Growth Investors, LLC*

The five principals of the firm manage the Micro-Cap Growth strategy and serve in the roles of both portfolio manager and analyst on the firm's four strategies offered. The team has an average industry experience of 21 years and a tenure at the firm of 15 years. The team has been very stable, with no portfolio managers having ever left the firm since its inception (with the exception of the previously mentioned above).

#### *J.P. Morgan Asset Management Inc.*

The strategy is managed by a team of three portfolio managers; however, there is a lead portfolio manager who has the final decision making authority. The portfolio management team is supported by a group of 43 researchers with a portion serving as dedicated sector analysts and the balance organized by region. Additionally, there is a team of macro



## U.S. Micro Cap and Dedicated Emerging Market Searches 3

analysts that provides top-down insights to the different international teams at the firm who can use that information to put context around the companies' operating environment that are being considered.

*Pzena Investment Management, LLC*

The strategy utilizes a portfolio manager team approach and consists of four individuals who also serve as research analysts. All buys and sales require consensus from the four portfolio managers. Supporting the strategy is the firm's shared research group which consists of 25 individuals who are organized as sector globalists. Analysts rotate coverage every 3-5 years to promote stability of coverage and guard against bias.

**Investment Philosophy and Process**

*Next Century Growth Investors, LLC*

Next Century Growth Investors, LLC (Next Century) strives to invest in high quality fast growing companies. The team believes that the combination of high growth companies in conjunction of a strong sell discipline will lead to the compounding of portfolio value over the long-term.

The process starts with a defined universe of those companies with less than \$1 billion in market cap and top line growth of 15% or greater that is organic and sustainable. The team focuses on those candidates that are disruptive in terms of products or services, a strong competitive advantage, have large and growing end markets, and a strong management team. The strategy's sell discipline is a key portion of its success. Securities are sold for a number of reasons with the goal of maintaining a healthy portfolio; extreme valuation, fundamental disappointment, and market cap forced ensures a rotation into more attractive opportunities.

*J.P. Morgan Asset Management Inc.*

The strategy seeks to invest in high-quality business that can compound strong growth over the long-term. Two key elements to the strategy center around understanding and valuation; gaining a deep understanding of the companies and echo systems of the investment candidate and correctly valuing the growth potential of a business. The team must be confident in the potential of the target company management's ability to exploit opportunities that will drive earnings and ultimately the share price. The strategy tends to have a bias towards small and mid-caps, which reflects the team's view that smaller companies are the best way to access the emerging market story and its secular themes of infrastructure and consumption.

The process really comes down to two questions: is this a business you would like to own, and if so, at what price would you buy or sell it? The first question is answered through fundamental analysis to gain an understanding of the underlying economics of the business, how durable are the expected future earnings, and the quality of governance. In other words, does the company produce good returns, are they sustainable, and will they accrue to shareholders, or does poor governance practice hinder that effort? Companies are classified as premium, quality, or trading. A risk profile is then developed for each business to ensure understanding and point to potential issues for continued deliberation. If it is determined that the business is of sufficient quality to continue research, analysts build a five year expected return to help develop the context for answering the second question. Expected return is a function of company driven forces such as earnings growth and dividends, and market driven forces such as valuation changes and currency. The strategy seeks to invest in companies that create shareholder value from the internal drivers of expected return.

*Pzena Investment Management, LLC*

Pzena is a classic value investor meaning they try to buy good businesses at low prices. Specifically, those that are underperforming their historical earnings power. The philosophy hinges on the belief that most investors are leery of



## U.S. Micro Cap and Dedicated Emerging Market Searches 4

those businesses that appear to be having problems and seek to avoid those that lack near-term earnings visibility. As a result, valuations are biased negatively as investors move on to less controversial options, providing skilled value investors opportunities for investment.

The process is bottom-up fundamental in nature, but also employs a top-down macro view in the process. Countries are accessed a discount rate based upon the spread between US Treasury spreads and sovereign bond spreads in order to make fairer comparisons between normalized earnings between regions. The process starts with a quantitative screen focused on valuation from an earnings perspective, specifically low price-to-normal earnings levels and current earnings falling below historical norms. A ranking is created based on these metrics and divided into quintiles. Pzena utilizes the cheapest quintile as its universe to select from for ideas for further fundamental research. A full research project is conducted which includes detailed financial models, on-sites/management discussions, solicitation of a bear-analyst review, and finalized normal earnings power assessment. Securities are sold when an idea reaches fair value, more attractive opportunities are found, and in the case of a fundamental breakdown. There is also a hard rule of sale at the midpoint of the normalized earnings spectrum of the universe.

### Client Stability

#### *Next Century Growth Investors, LLC*

Next Century has experienced an asset downtrend for the past several years, with AUM declines across all strategies. Several rounds of quantitative easing led to low yields within the U.S., which as the environment persisted caused a rotation to those names that provided high dividend yields. As a result higher growth names struggled significantly versus lower growth names with higher dividend payouts. Additionally, a consultant with common clients recommended terminating the strategy, triggering nearly a \$1 billion exodus across multiple products within the firm. The micro-cap strategy in particular lost assets in 2015 and 2017 due to relative underperformance in 2014 and 2015 versus the index; performance rebounded significantly in 2017 and 2018. Client assets appear to have stabilized. Wilshire's manager research group conducted an additional review of the manager. Consultant view of the firm from a ranking perspective remained stable as asset losses and investor concentration required a slight downgrade which was offset by an upgrade in process and implementation.

#### *J.P. Morgan Asset Management Inc.*

J.P. Morgan Asset Management has benefited for several years from continued inflows both in terms of number of clients and assets. Over the past five years, strategy has added approximately \$1 billion in AUM across 17 new clients and has experienced asset outflows of just \$34 million.

#### *Pzena Investment Management, LLC*

Pzena as a firm has enjoyed a stable level of assets under management for the past several years. The specific strategy of interest to KRS has been relatively stable over the last several years. During the past five calendar years, the strategy experienced inflows of roughly \$400 million and one account loss of \$519 million which was a corporate defined benefit plan moving to an liability-driven investing model. During the first quarter of 2019, the product benefited from inflows of nearly \$360 million.

### Performance

Next Century Growth Investors, LLC							
As of: 03/31/19	YTD	1 YR	3 YRS	5 YRS	10 YRS	15 YRS	SI
NCG Micro Cap Growth Composite (GR)	15.2	27.9	34.0	13.9	22.1	13.0	17.3
Russell Microcap Growth Index	16.0	-1.4	10.8	3.5	14.8	5.6	9.0
*Inception Date: 01/01/03							





## U.S. Micro Cap and Dedicated Emerging Market Searches 6

to a passive MSCI World Ex-US Index mandate. The emerging market portion of the MSCI ACWI Ex-US Index is approximately 25%, thus 10% of the KRS non-U.S. allocation would be used for the initial funding, which equates to roughly \$350 million as of the end of May. Wilshire's optimizer funds the two candidates rather closely; therefore, staff and consultant recommend equal funding for J.P. Morgan and Pzena. Initial funding would be at 5% of the total non-U.S. exposure for each mandate (approximately \$175 million). Further, the optimizer suggests a larger investment in emerging markets, and therefore staff is requesting approval of up to 7.0% (roughly \$245 million) for each mandate to allow for portfolio optimization and rebalancing.

As stated above, initial funding & sizing is dependent upon transitioning the BlackRock MSCI ACWI-Ex US Index product utilized by KRS to a BlackRock MSCI World Ex-US Index strategy. KRS has had a long-term relationship with BlackRock and staff is comfortable making this recommendation as it is the largest passive index provider in the industry. Below is the performance of the MSCI World Ex-US product administered by BlackRock.

BlackRock						
As of: 03/31/19	YTD	1 YR	3 YRS	5 YRS	10 YRS	
BlackRock World Ex-US	10.6	-2.6	7.8	2.6	9.3	
MSCI World Ex-US Index	10.5	-3.1	7.3	2.2	8.8	

### Third-Party Provider and Placement Agent Disclosure

In accordance with KRS' gating practices, KRS Staff has requested candidate managers to acknowledge KRS transparency requirements, and to complete conflict of interest statements and placement agent forms. No placement agents have been involved or will be compensated as a result of this recommendation. A copy of each manager's Statement of Conflict of Interest and Placement Agent questionnaire has been attached to this recommendation.

### Recommendation

As previously stated, staff and consultant are working to create greater efficiencies within the public equity allocation. This requires determining the optimal method for structuring the portfolio and accessing different segments of the market. In an effort to do this while being mindful of fee dollar expense, those portion of the market that are viewed as most efficient will be accessed as cheaply as possible as the chance for outperformance is lower. As a result, the U.S. portfolio will tilt towards passive exposure, especially within the large and mid-cap spaces. Those market segments that are less efficient provide greater opportunity for outperformance. This will point to greater active management within the small and micro-cap spaces within U.S. markets and an overall tilt towards active management outside of the U.S., especially within emerging markets.

Because of the above viewpoint and the search process completed, KRS Staff and Wilshire Associates put forth the following recommendations for the Investment Committee's consideration (pending final successful onsite visits at manager firms):

*Next Century Growth Investors, LLC – Micro Cap Growth Strategy*

*Initial Funding \$50-75 million (2.5%) with option to grow/add to total of 3.5% of U.S. allocation.*

*J.P. Morgan Asset Management Inc. – Global Emerging Markets (GEM) Discovery Strategy*

*Initial Funding \$175 million (5%) with option to grow/add to total of 7% of Non-U.S. allocation.*

*Pzena Investment Management, LLC – Emerging Markets Select Value Strategy*

*Initial Funding \$175 million (5%) with option to grow/add to total of 7% of Non-U.S. allocation.*

*Transition the remaining balance of the BlackRock ACWI-Ex US Index portfolio to the BlackRock World Ex-US Index strategy.*

We welcome any comments or questions by the Committee.



**EXHIBIT B – Conflict of Interest Statement**

**KENTUCKY RETIREMENT SYSTEMS  
CONFLICT OF INTEREST STATEMENT**

In consideration of the investment by Kentucky Retirement Systems and Kentucky Retirement Systems Insurance Trust Fund (collectively, "KRS") in a vehicle or account ("Account") managed by Next Century Growth Investors, LLC (the "Manager"), the Manager acknowledges the need to maintain the public's confidence and trust in the integrity of KRS and the Commonwealth of Kentucky. In light of the forgoing, the Manager agrees to:

- Diligently identify, disclose, avoid and manage conflicts of interest that may arise through its relationship with KRS.
- Conduct activities with KRS so as not to advance or protect its own interests or the private interests of others with whom it has a relationship in a way that is detrimental to the interests of KRS.
- Conduct its activities in a manner to best promote the interests of KRS, but subject to the Manager's duty which requires it not to put the interests of one investor ahead of those of another investor.
- Upon discovery of an actual or potential conflict of interest involving KRS, disclose such conflict of interest to KRS and work with KRS in good faith to resolve or mitigate such conflict.
- Not engage directly or indirectly in any financial or other transactions with a trustee or employee of KRS that would violate the standards of the Executive Branch Ethics provisions as set forth in KRS Chapter 11A.

Agreed this the 7<sup>th</sup> day of June, 20 19

MANAGER

For itself and on behalf of the Account

By: Thomas L. Press

Name: Thomas L. Press

Title: Chairman & CEO

(Rev. Feb 2018)



## Kentucky Retirement Systems

### Statement of Disclosure and Placement Agents – Manager Questionnaire

1. Did your firm use a placement agent as defined in the KRS “Statement of Disclosure and Placement Agents” policy in an effort to solicit an Investment from KRS Please indicate fund vehicle title if relevant? If yes, please continue to question 2; if no, please proceed to question 10.

The firm did not use a placement agent as defined in the KRS “Statement of Disclosure and Placement Agents” policy

2. Please disclose the name of the placement agency used, the names of the individuals contracted by the placement agency (either as employees or as sub-agents) in order to solicit an investment from KRS, and the fees paid or payable to the placement agent in connection with a prospective KRS investment.

n/a

3. Please represent that any fees paid to placement agents are the sole obligation of the investment manager and not that of KRS or the limited partnership.

n/a

4. Please disclose the names of any current or former Kentucky elected or appointed government officials (federal, state, and local government), KRS Board of Trustees members, employees, or consultants of KRS, or any other person, if any, who suggested the retention of the placement agent.

n/a

5. Please provide evidence of the regulatory agencies, if any, in any Federal, state or foreign jurisdiction the placement agent or any of its affiliates are registered with, such as the Securities and Exchange Commission (“SEC”), FINRA, or any similar regulatory agency.

n/a

6. Please provide a resume for each officer, partner or principal of the Placement Agent detailing the person’s education, professional designations, regulatory licenses and investment and work experience.

n/a

7. Please describe the services to be performed by the Placement Agent.

n/a

8. Please disclose whether the Placement Agent, or any of its affiliates, is registered as a lobbyist with any and all Kentucky state and local (county) governments.

n/a

9. Please disclose any political contributions made by the Placement Agent to any Kentucky official within the prior 2 years.

n/a

10. Please disclose the names of any current or former Kentucky elected or appointed government officials (federal, state, and local government) KRS Board of Trustees members, employees, or consultants of KRS that are receiving any fees or compensation from the External Manager and/or placement agent. Please disclose any additional known relationships or conflicts with same.

n/a

11. Please disclose any political contributions made by External Manager or principals of the External Manager in the prior 2 years.

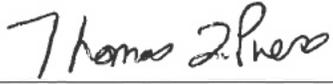
None

12. Please disclose whether any principals of the firm have been involved in any regulatory proceedings, and if so, details concerning the same.

None

13. Please provide a statement representing and warranting the accuracy of the information provided to KRS regarding the Statement of Disclosure, and acknowledge that similar language will be included in any final written agreement with a continuing obligation to update any such information within 10 business days of any change in the information.

**The information provided above is accurate and any change to such information will be communicated within 10 business days of change.**

 6-7-2019  
\_\_\_\_\_  
External Manager Signature                      Date



**Kentucky Retirement Systems**  
**Statement of Disclosure and Placement Agents**  
**Approved May 2011**

**I. Purpose**

This Policy sets forth the disclosure requirements which must be satisfied prior to any Kentucky Retirement Systems ("KRS") investment if a placement agent is involved. KRS shall require the disclosure of detailed information regarding payments and fees in connection with KRS' investments in or through External Managers (as defined herein), broker/dealers, Placement Agents (as defined herein) and those having or conducting business with KRS. This Policy is intended to apply broadly to all of the types of investment advisors with whom KRS conducts or potentially conducts business with including general partners, managers, investment managers and sponsors of hedge funds, funds of funds, private equity funds, real estate funds, infrastructure funds, as well as investment managers retained pursuant to a contract. KRS requires broad, timely, and annual updated disclosures of relationships, compensation and fees. The goal of this Policy is to bring transparency to placement agent activity in connection with KRS' investments and help ensure that KRS' investment decisions are made solely on the merits of the investment opportunity and in a manner consistent with the responsibilities of the Board of Trustees and individuals who owe a fiduciary duty to KRS.

**II. Objectives**

The role and function of Placement Agents are to provide sales and marketing services to investment management firms. Placement Agents exist because, with the exception of the largest firms (i.e., private equity and hedge fund general partnerships), many of these investment managers are not equipped to raise their investment funds independently. Most External Managers do not have the resources internally to access the capital markets. They require services such as crafting presentations, drafting, proofing and distributing private placement memorandums, sorting the potential universe of limited partners and determining how to access those limited partners, arranging meetings with the limited partners, handling follow-up meetings, assisting in the due diligence process including managing on-site due diligence meetings, and the closing process.

External investment managers in both the public and private markets use Placement Agents to assist them raise capital from various sources. Therefore, the Kentucky Retirement Systems' objectives are:

1. To ensure that KRS' investment decisions are consistent with KRS' overall Investment Policy Statements
2. To supplement the due diligence and information available to KRS Board Members, Staff, and Consultants when evaluating an investment opportunity
3. To prevent impropriety, conflicts of interest, and/or the appearance of improprieties and/or conflicts of interest
4. Provide transparency and confidence in KRS investment decision-making and process

**III. Application**

This Policy applies to all agreements with External Managers that are entered into after the date this Policy is adopted. This Policy also applies to existing agreements with External Managers if, after the date this Policy is adopted, the term of the agreement is extended, there is any increased commitment of

funds by KRS pursuant to the existing agreement or there is a material amendment to the substantive terms of an existing agreement, including the fees or compensation payable to the External Manager.

#### **IV. Responsibilities:**

##### **A. External Manager's Responsibilities**

Prior to KRS investing with any manager, KRS Staff shall obtain a written representation from the investment manager, in a form acceptable to KRS' Legal Office, stating that the investment manager has not used a placement agent in connection with the KRS investment opportunity, or if the manager has used a placement agent, it will disclose the following to KRS:

- The name of the placement agent
- The fee paid or payable to the placement agent
- Representation that the fee is the sole obligation of the investment manager and not that of KRS or the limited partnership
- Current or former Kentucky Officials (federal, state, and local government), KRS Board of Trustees members, KRS employees, or consultants to KRS that are receiving any fees or compensation from the External Manager and/or placement agent
- The names of any current or former Kentucky elected or appointed government officials (federal, state, and local government) KRS Board of Trustees members, employees, or consultants of KRS, or any other person, if any, who suggested the retention of the placement agent
- Evidence of the regulatory agencies, if any, in any Federal, state or foreign jurisdiction the placement agent or any of its affiliates are registered with, such as the Securities and Exchange Commission ("SEC"), FINRA, or any similar regulatory agency
- A resume for each officer, partner or principal of the Placement Agent detailing the person's education, professional designations, regulatory licenses and investment and work experience
- A description of the services to be performed by the Placement Agent
- A statement whether the Placement Agent, or any of its affiliates, is registered as a lobbyist with any and all Kentucky state and local (county) governments
- A statement by the External Manager and/or placement agent representing and warranting the accuracy of the information provided to KRS regarding the Statement of Disclosure in any final written agreement with a continuing obligation to update any such information within 10 business days of any change in the information.

In the event a placement agent is expected to receive remuneration for a KRS investment, KRS Staff will notify the Investment Committee in the memorandum discussing the recommended/approved investment. If a manager breaches the Policy, Staff will notify the Investment Committee as soon as practicable.

##### **B. KRS Staff Responsibilities**

- Providing the public with disclosure by posting a copy of this Policy on KRS' website
- Implementing this Policy for KRS
- Providing regular disclosure updates to the KRS Investment Committee and the Board of Trustees.

All parties responsible for implementing, monitoring and complying with this Policy shall consider the spirit as well as the literal expression of the Policy.

### V. Conflict of Interest

All persons and entities contracting with KRS shall certify that they are legally capable of entering into a binding contract and authorized to do so; that they are not nor shall be in violation of any Kentucky law, statute or regulation pertaining to a conflict of interest including, but not limited to, KRS 121.056; and that they are not nor shall be in violation of any provision of KRS Chapter 11A or any regulation promulgated thereunder, or any law or regulation pertaining to the Kentucky Registry of Election Finance and the reporting requirements thereof.

All persons and entities seeking to or actually contracting with KRS shall disclose all relationships and potential conflicts of interest with any KRS Staff, Committee or Board Member. Subsequent discovery of any undisclosed conflict may be considered a breach of contract and may result in immediate termination of any agreements without penalty or fee to KRS.

### Glossary of Terms

#### KRS Vehicle

A partnership, limited liability company, account or other investment vehicle in which KRS is the investor.

#### Consultant

Consultant refers to individuals or firms, and includes Key Personnel of Consultant firms, who are contractually retained or have been appointed to KRS to provide investment advice to KRS but who do not exercise investment discretion.

#### External Manager

An asset management firm that is seeking to be, or has been, retained by KRS or by a KRS Vehicle to manage a portfolio of assets (including securities) for a fee. The External Manager usually has full discretion to manage KRS assets, consistent with investment management guidelines provided by KRS and fiduciary responsibility.

#### Placement Agent

Any person or entity hired, engaged or retained by or acting on behalf of an External Manager or on behalf of another Placement Agent as a finder, solicitor, marketer, consultant, broker or other intermediary to raise money or investments from or to obtain access to KRS, directly or indirectly, including without limitation through a KRS Vehicle.

### Signatories

As Adopted By The Investment Committee

Date: May 3, 2011

Signature: \_\_\_\_\_

Tommy Elliott

As Adopted By The Board of Trustees

Date: May 19, 2011

Signature: \_\_\_\_\_

Jennifer Elliott

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**Kentucky Retirement Systems  
&  
Kentucky Retirement Systems Insurance Trust Fund (collectively, "KRS")**

**Gating Issues for Investing**

**(version June 2019)**

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Below are KRS's "gating items," with which the GP/investment manager needs to agree in order for KRS to make the proposed fund investment. Following confirmation that the GP/investment manager agrees with KRS on these gating issues, KRS will provide a comment memo and a full side letter.

We are disseminating the gating items list at the beginning of the process, so that internal counsel for the GP/ investment manager (and its law firm) can unambiguously understand that the side letter will need to be consistent with these gating items, and KRS will not accept the fund's "standard" provisions if they are in any way inconsistent with these gating items.

1. Disclsoure/Public Records Law. The GP/investment manager understands that KRS is subject to Kentucky's public records/disclosure laws and that KRS will disclose certain fund-level information, all contracts/offering documents, and other fee information, as described in KRS's side letter request and applicable Kentucky law. (See Exhibit A for a copy of the provision.)

Particularly, the GP/investment manager understands that:

(a) Pursuant to Kentucky Revised Statutes sections 61.645(19)(l) and (20), KRS is required to disclose all contracts or offering documents for services, goods, or property purchased or utilized by KRS. KRS intends to post any contracts with the GP/investment manager/fund on its website, which may include partnership agreements, side letters or similar documents. KRS may also post offering documents to its website if such offering documents contain substantive legal terms that are not contained in KRS's contracts with the GP/investment manager/fund or if there is no separate contract governing the investment. The GP/investment manager is invited to send KRS a redacted version of the contracts/offering documents.

(b) With respect to redacted documents, the GP/investment manager can only redact information that is exempt under Kentucky Revised Statutes sections 61.878(1)(c)(1); 61.878(1)(k) or 61.645(20) (i.e., information that is proprietary or otherwise exempt under Kentucky Revised Statutes section 61.878). Redacted documents should be reviewed by KRS prior to closing.

(c) In KRS's side letter (or in other relevant document executed by KRS), the GP/investment manager must clearly state the final closing date of the fund, and acknowledge that the final closing date is the date on which all redacted documents will be/may be posted on KRS's website or disclosed to the public. Further, the side letter must state that the fund/GP/investment manager will not make any claim against KRS if it makes available to the public any document, report, notice or other information that KRS received from the fund, which was required to be made public by KRS

pursuant to the Open Records Act, the Fee Disclosure Law, or the Document Disclosure Law (even if a court or the Attorney General later determines that certain information disclosed by KRS falls within an exemption under the Open Records Act, the Fee Disclosure Law, or the Document Disclosure Law.)

(d) pursuant to Kentucky Revised Statutes section 61.645(19)(i), KRS is required to disclose certain fee information. (See paragraph 1(d) in Exhibit A.)

2. Compliance with and Adherence to Investment Advisers Act of 1940, et.al. The GP/investment manager confirms that the GP and the investment manager shall comply with Kentucky Revised Statutes Section 61.650(1)(d)(2). (See paragraph 2 in Exhibit A for standard letter provision.)

3. KRS's Indemnification Obligation. KRS's indemnification obligations under the Subscription Agreement and the Partnership Agreement are not expressly authorized by the laws of the Commonwealth of Kentucky. Thus, KRS can't make any payment constituting such indemnification to the extent not authorized under such laws. (See paragraph 3 in Exhibit A.)

4. Sovereign Immunity. As a public agency, KRS reserves all immunities, defenses, rights or actions arising out of its sovereign status or under the 11th Amendment to the U.S. Constitution. (See paragraph 4 in Exhibit A.)

5. Jurisdiction/Venue.

(a) KRS requires its side letter to be governed by the laws of the Commonwealth of Kentucky, to the extent the terms in the side letter require interpretation or enforcement of a law, regulation or public policy of Kentucky. (See paragraph 5 in Exhibit A.); and

(b) The GP/investment manager agrees to the exclusive jurisdiction of the Franklin County Circuit Court in the Commonwealth of Kentucky, in connection with any legal proceeding involving any claim asserted by or against KRS arising out of the Partnership Agreement, the Subscription Agreement or related documents.

6. Conflict of Interest Statement. As part of KRS' internal policy, the GP/manager is required to sign and return KRS' Conflict of Interest Statement. (See Exhibit B.)

7. Statement of Disclosure and Placement Agent. As part of KRS' internal policy, the GP/manager is required to complete and return KRS' Statement of Disclosure and Placement Agent (Separately attached: See KRS's Statement of Disclosure and Placement Agents – Manager Questionnaire).

## EXHIBIT A - Side Letter Provisions

### 1. Public Records.

(a) The Partnership hereby acknowledges that the Investor is a public agency subject to (i) Kentucky's public record law (Kentucky Revised Statutes sections 61.870 to 61.884, the "Open Records Act"), which provide generally that all records relating to a public agency's business are open to public inspection and copying unless exempted under the Open Records Act, (ii) Kentucky Revised Statutes section 61.645(19)(i) (the "Fee Disclosure Law"), and (iii) Kentucky Revised Statutes sections 61.645 (19)(l) and (20) (the "Document Disclosure Law"), which provide generally that all contracts or offering documents for services, goods, or property purchased or utilized by the Investor shall be made available to the public unless exempted under the Document Disclosure Law. Notwithstanding any provision in the Partnership Agreement or the Subscription Agreement to the contrary, the Partnership hereby agrees that (i) the Investor will generally treat all information received from the General Partner or the Partnership as open to public inspection under the Open Records Act, the Fee Disclosure Law or the Document Disclosure Law, unless such information falls within an exemption under the Open Records Act, the Fee Disclosure Law or the Document Disclosure Law, and (ii) the Investor will not be deemed to be in violation of any provision of the Partnership Agreement or the Subscription Agreement relating to confidentiality if the Investor discloses or makes available to the public (e.g., via Investor's website) any information regarding the Partnership to the extent required pursuant to or under the Open Records Act, the Fee Disclosure Law or the Document Disclosure Law, including the Fund-Level Information in paragraph 1(b) (even if a court or the Attorney General later determines that certain information disclosed by the Investor falls within an exemption under the Open Records Act, the Fee Disclosure Law, or the Document Disclosure Law).

(b) The General Partner acknowledges that the Investor considers certain fund level information public under the Open Records Act, the Fee Disclosure Law or the Document Disclosure Law and that the Investor has concluded that it is obligated to disclose such information upon request (e.g., via Investor's website). Notwithstanding any provision in the Partnership Agreement or Subscription Agreement to the contrary, the General Partner agrees that the Investor may disclose the following information without notice to the General Partner or the Partnership: (i) the name of the Partnership, (ii) the vintage year of the Partnership and/or the date in which the Investor's initial investment was made in the Partnership; (iii) the amount of the Investor's Capital Commitment and unfunded Capital Commitment, (iv) aggregate funded contributions made by the Investor and aggregate distributions received by the Investor from the Partnership as of a specified date; (v) the estimated current value of the Investor's investment in the Partnership as of any previous date, (vi) the net asset value of the Partnership as of a specified date, (vii) the estimated IRR of the Investor's investment in the Partnership as of a specified date, and (viii) the amount of fees and commissions (including, but not limited to, the Management Fees, amounts paid in lieu of the Management Fees, and Carried Interest Distributions) paid to the General Partner and its Affiliates with respect to the Investor's interests (the "Fund-Level Information"). Nothing contained herein shall require the General Partner to disclose to the Investor information not otherwise made available to all Limited Partners pursuant to the Partnership Agreement.

(c) The General Partner agrees that the Investor may disclose the redacted versions of [Confidential Private Placement Memorandum of the Partnership,<sup>1</sup> the Partnership Agreement, this Side Letter, and the Investor's Subscription Documents] (collectively, the "Partnership Documents"), in each case to the extent required by the Document Disclosure Law, once

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<sup>1</sup> Please note KRS may be able to remove the PPM from the list if the PPM includes all substantial legal terms that are addressed in the LPA. If the PPM has substantial legal terms that are not addressed in the LPA, it should be included in the list.

the offering period ends and the final closing date [FUND TO INSERT THE FINAL CLOSING DATE] occurs. It is further understood and agreed that the parties hereto shall amend and restate this Side Letter to reflect any elections under [MFN paragraph] hereof and shall amend the redacted version of this Side Letter in connection therewith.

(d) Notwithstanding any provision in the Partnership Agreement or Subscription Agreement to the contrary, the General Partner shall provide the Investor on at least a quarterly basis the information set forth in the Fee Disclosure Law, including but not limited to, (i) the dollar value of fees and commissions paid by the Investor (including via Capital Contributions) to the Partnership (including any Alternative Investment Vehicle), General Partner, Management Company or their respective Affiliates; (ii) the dollar value of the Investor's pro rata share of any profit sharing, Carried Interest Distributions or any other incentive arrangements, partnership agreements, or any other partnership expenses paid to the Partnership, General Partner, Management Company or their Affiliates; and (iii) if applicable, the name and address of all individual underlying managers or partners in any fund of funds in which Investor's assets are invested.

(e) The General Partner agrees that the Investor may disclose confidential information to any governmental body that has oversight over it and its statutory auditor, without notice to the General Partner or the Partnership; provided that such information retains the same confidential treatment with the recipient.

(f) The General Partner agrees to provide reporting to the Investor in accordance with the Fee Template published by the Institutional Limited Partners Association (available at [ilpa.org](http://ilpa.org)).

(g) The General Partner and the Partnership acknowledge and agree that pursuant to the Open Records Act, the Fee Disclosure Law or the Document Disclosure Law, the Investor may publicly disclose the information set forth in this paragraph 1 without further notice to the General Partner.

2. Investment Advisers Act of 1940. The General Partner confirms that pursuant to Kentucky Revised Statutes Section 61.650(1)(d)(2), the General Partner and the Management Company shall comply with (a) the Investment Advisers Act of 1940, as amended, and the rules and regulations promulgated thereunder, and (b) all other federal securities statutes and related rules and regulations applicable to investment managers. **[Note to GP/Manager: To the extent the manager views itself exempt from the registration with the SEC, KRS expects that the manager would act as if they were a registered investment adviser (i.e., comply with substantive provisions of the Advisers Act (everything except filing requirements) and provide a private action to KRS in the event of violations of the Advisers Act terms).]**

3. Indemnification. The General Partner acknowledges that the Investor has advised it that indemnification obligations under the Investor's Subscription Agreement and the Partnership Agreement that may be attributed to the Investor are not expressly authorized by the laws of the Commonwealth of Kentucky. As a result thereof, the Investor shall not be obligated to make any payment constituting such indemnification to the extent not authorized under such laws. Representations, warranties or covenants made by the Investor in the Partnership Agreement or the Investor's Subscription Agreement respecting limited partner interests in the Partnership shall be deemed to be modified so as to be consistent with the provisions of the preceding sentence. Nothing contained herein, however, shall relieve the Investor of any obligation it may have under the Partnership Agreement to contribute capital in respect of its Capital Commitment under the terms and conditions of the Partnership Agreement.

4. Reservation of Immunities. The Investor hereby reserves all immunities, defenses, rights or actions arising out of its sovereign status or under the Eleventh Amendment to the United

States Constitution, and no waiver of any such immunities, defenses, rights or actions shall be implied or otherwise deemed to exist by its entry into the Partnership Agreement, the Subscription Agreement or this Side Letter (the "Investment Agreements"), by any express or implied provision thereof or by any actions or omissions to act on behalf of the Investor or any representative or agent of the Investor, whether taken pursuant to the Partnership Agreement or the Subscription Agreement or prior to the entry by the Investor into the Partnership Agreement or the Subscription Agreement.

Notwithstanding the foregoing sentence, the Investor hereby acknowledges that the foregoing sentence in no way compromises or otherwise limits the obligations (including the contractual liability) of the Investor under the Investment Agreements nor shall it reduce or modify the rights of the General Partner and the Partnership to enforce such obligations at law or in equity, in each case including but not limited to (a) Investor's obligations to make contributions and (b) any obligation to reimburse or otherwise pay the Partnership or any other Partner for any loss, damage or liability arising from a breach of any representation, warranty or agreement of the Investor contained in the Partnership Agreement or the Investor's Subscription Agreement.

5. Governing Law; Jurisdiction. Except to the extent the terms hereof require interpretation or enforcement of a law, regulation or public policy of the Commonwealth of Kentucky, in which case the laws of the Commonwealth of Kentucky shall govern, this Side Letter shall be governed by the laws of the [State of Delaware] without regard to principles of conflicts of law. Notwithstanding anything to the contrary in the Partnership Agreement or the Subscription Agreement, the General Partner agrees with the Investor that any legal proceeding involving any claim asserted by or against the Investor arising out of the Partnership Agreement or the Subscription Agreement may be brought only in and subject to the exclusive jurisdiction of the Franklin County Circuit Court in the Commonwealth of Kentucky.

6. Conflicts Interest Statement. The General Partner acknowledges and agrees it will act in accordance with the Conflict of Interest Statement attached hereto as Exhibit B and will promptly notify the Investor if it becomes aware of a violation of such Exhibit.

7. Statement of Disclosure and Placement Agent. The General Partner acknowledges and agrees it will promptly notify KRS in writing if any of the responses set forth in the Statement of Disclosure and Placement Agents attached hereto as [Exhibit\_\_\_] cease to be accurate.

**EXHIBIT B – Conflict of Interest Statement**  
**KENTUCKY RETIREMENT SYSTEMS**  
**CONFLICT OF INTEREST STATEMENT**

In consideration of the investment by Kentucky Retirement Systems and Kentucky Retirement Systems Insurance Trust Fund (collectively, "KRS") in a vehicle or account ("Account") managed by [J.P. Morgan Investment Management Inc. (JPMIM)] (the "Manager"), the Manager acknowledges the need to maintain the public's confidence and trust in the integrity of KRS and the Commonwealth of Kentucky. In light of the forgoing, the Manager agrees to:

- Diligently identify, disclose, avoid and manage conflicts of interest that may arise through its relationship with KRS.
- Conduct activities with KRS so as not to advance or protect its own interests or the private interests of others with whom it has a relationship in a way that is detrimental to the interests of KRS.
- Conduct its activities in a manner to best promote the interests of KRS, but subject to the Manager's duty which requires it not to put the interests of one investor ahead of those of another investor.
- Upon discovery of an actual or potential conflict of interest involving KRS, disclose such conflict of interest to KRS and work with KRS in good faith to resolve or mitigate such conflict.
- Not engage directly or indirectly in any financial or other transactions with a trustee or employee of KRS that would violate the standards of the Executive Branch Ethics provisions as set forth in KRS Chapter 11A.

Agreed this the 14<sup>th</sup> day of June, 2019

MANAGER

For itself and on behalf of the Account



By: \_\_\_\_\_

Name: Jeffrey Fox

Title: Managing Director, Client Advisor

(Rev. Feb 2018)

As discussed with Joe Gilbert, J.P. Morgan Investment Management Inc. has carefully reviewed the Gating Terms (including the Conflict of Interest Statement – Exhibit B) and, while we do not believe there are any material issues that cannot be resolved to our mutual benefit, we respectfully reserve the right to further discuss with you how we may tailor certain provisions of the Gating Terms to the vehicle and structure you ultimately decide on so as to appropriately address any legal, regulatory or operational requirements that pertain to the services being offered.



## Kentucky Retirement Systems

### Statement of Disclosure and Placement Agents – Manager Questionnaire

1. Did your firm use a placement agent as defined in the KRS “Statement of Disclosure and Placement Agents” policy in an effort to solicit an Investment from KRS Please indicate fund vehicle title if relevant? If yes, please continue to question 2; if no, please proceed to question 10.

No, J.P. Morgan Investment Management Inc. (JPMIM) does not hire 3rd party marketing or placement agents. JPMIM provides a salary, discretionary incentive award and benefits to JPMIM employees, Salaries are paid on a semi-monthly basis, while the discretionary incentive award is distributed annually in the form of cash and JPMorgan Chase & Co. (JPMC) Restricted Stock Units. Discretionary incentive awards are determined by management based upon factors that include individual, JPMIM and over-all JPMC performance. All compensation and benefits are believed to be commensurate with what is provided by competitor organizations. Employees will receive compensation under these provisions whether or not Kentucky Retirement Systems decide to invest in the Proposed Investment.

2. Please disclose the name of the placement agency used, the names of the individuals contracted by the placement agency (either as employees or as sub-agents) in order to solicit an investment from KRS, and the fees paid or payable to the placement agent in connection with a prospective KRS investment.

Not applicable.

3. Please represent that any fees paid to placement agents are the sole obligation of the investment manager and not that of KRS or the limited partnership.

Not applicable.

4. Please disclose the names of any current or former Kentucky elected or appointed government officials (federal, state, and local government), KRS Board of Trustees members, employees, or consultants of KRS, or any other person, if any, who suggested the retention of the placement agent.

Not applicable.

5. Please provide evidence of the regulatory agencies, if any, in any Federal, state or foreign jurisdiction the placement agent or any of its affiliates are registered with, such as the Securities and Exchange Commission (“SEC”), FINRA, or any similar regulatory agency.

Not applicable.

6. Please provide a resume for each officer, partner or principal of the Placement Agent detailing the person’s education, professional designations, regulatory licenses and investment and work experience.

7. Please describe the services to be performed by the Placement Agent.

Not applicable.

8. Please disclose whether the Placement Agent, or any of its affiliates, is registered as a lobbyist with any and all Kentucky state and local (county) governments.

Not applicable.

9. Please disclose any political contributions made by the Placement Agent to any Kentucky official within the prior 2 years.

Not applicable.

10. Please disclose the names of any current or former Kentucky elected or appointed government officials (federal, state, and local government) KRS Board of Trustees members, employees, or consultants of KRS that are receiving any fees or compensation from the External Manager and/or placement agent. Please disclose any additional known relationships or conflicts with same.

None.

11. Please disclose any political contributions made by External Manager or principals of the External Manager in the prior 2 years.

To the best of our knowledge, information and belief, no political contributions were identified from JPMIM or JPMIM's principals to any current or former Kentucky elected or appointed government officials (federal, state, and local government) in the prior two years.

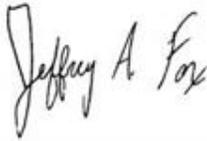
12. Please disclose whether any principals of the firm have been involved in any regulatory proceedings, and if so, details concerning the same.

JPMorgan Chase & Co. and/or its subsidiaries (collectively, the "Firm") are defendants or putative defendants in numerous legal proceedings, including private civil litigations and regulatory/government investigations. The litigations range from individual actions involving a single plaintiff to class action lawsuits with potentially millions of class members. Investigations involve both formal and informal proceedings, by both governmental agencies and self-regulatory organizations. These legal proceedings are at varying stages of adjudication, arbitration or investigation, and involve each of the Firm's lines of business and geographies and a wide variety of claims (including common law tort and contract claims and statutory antitrust, securities and consumer protection claims), some of which present novel legal theories. Based on current knowledge, the Firm believes it has asserted meritorious defenses to the claims asserted against it in its currently outstanding legal proceedings, intends to defend itself vigorously in all such matters and does not believe that any pending legal proceeding would have a material effect on the Firm's performance of the services contemplated by the RFP. For further discussion, please refer to JPMorgan Chase & Co.'s publicly-filed disclosures, including its most recent Annual Report on Form 10-K and Quarterly Reports on Form 10-Q filed with

the U.S. Securities and Exchange Commission (available at: <https://investor.shareholder.com/jpmorganchase/sec.cfm>)

13. Please provide a statement representing and warranting the accuracy of the information provided to KRS regarding the Statement of Disclosure, and acknowledge that similar language will be included in any final written agreement with a continuing obligation to update any such information within 10 business days of any change in the information.

The firm (i) represents and warrants that the information provided to KRS regarding the Statement of Disclosure is accurate and (ii) acknowledges that similar language will be included in any final agreement with a continuing obligation to update any such information within 10 business days of change of any information.



External Manager Signature      Date 6/14/19

Jeffrey Fox, Managing Director, Client Advisor



**Kentucky Retirement Systems**  
Statement of Disclosure and Placement Agents  
Approved May 2011

### **I. Purpose**

This Policy sets forth the disclosure requirements which must be satisfied prior to any Kentucky Retirement Systems ("KRS") investment if a placement agent is involved. KRS shall require the disclosure of detailed information regarding payments and fees in connection with KRS' investments in or through External Managers (as defined herein), broker/dealers, Placement Agents (as defined herein) and those having or conducting business with KRS. This Policy is intended to apply broadly to all of the types of investment advisors with whom KRS conducts or potentially conducts business with including general partners, managers, investment managers and sponsors of hedge funds, funds of funds, private equity funds, real estate funds, infrastructure funds, as well as investment managers retained pursuant to a contract. KRS requires broad, timely, and annual updated disclosures of relationships, compensation and fees. The goal of this Policy is to bring transparency to placement agent activity in connection with KRS' investments and help ensure that KRS' investment decisions are made solely on the merits of the investment opportunity and in a manner consistent with the responsibilities of the Board of Trustees and individuals who owe a fiduciary duty to KRS.

### **II. Objectives**

The role and function of Placement Agents are to provide sales and marketing services to investment management firms. Placement Agents exist because, with the exception of the largest firms (i.e., private equity and hedge fund general partnerships), many of these investment managers are not equipped to raise their investment funds independently. Most External Managers do not have the resources internally to access the capital markets. They require services such as crafting presentations, drafting, proofing and distributing private placement memorandums, sorting the potential universe of limited partners and determining how to access those limited partners, arranging meetings with the limited partners, handling follow-up meetings, assisting in the due diligence process including managing on-site due diligence meetings, and the closing process.

External investment managers in both the public and private markets use Placement Agents to assist them raise capital from various sources. Therefore, the Kentucky Retirement Systems' objectives are:

1. To ensure that KRS' investment decisions are consistent with KRS' overall Investment Policy Statements
2. To supplement the due diligence and information available to KRS Board Members, Staff, and Consultants when evaluating an investment opportunity
3. To prevent impropriety, conflicts of interest, and/or the appearance of improprieties and/or conflicts of interest
4. Provide transparency and confidence in KRS investment decision-making and process

### **III. Application**

This Policy applies to all agreements with External Managers that are entered into after the date this Policy is adopted. This Policy also applies to existing agreements with External Managers if, after the date this Policy is adopted, the term of the agreement is extended, there is any increased commitment of

funds by KRS pursuant to the existing agreement or there is a material amendment to the substantive terms of an existing agreement, including the fees or compensation payable to the External Manager.

#### **IV. Responsibilities:**

##### **A. External Manager's Responsibilities**

Prior to KRS investing with any manager, KRS Staff shall obtain a written representation from the investment manager, in a form acceptable to KRS' Legal Office, stating that the investment manager has not used a placement agent in connection with the KRS investment opportunity, *or* if the manager has used a placement agent, it will disclose the following to KRS:

- The name of the placement agent
- The fee paid or payable to the placement agent
- Representation that the fee is the sole obligation of the investment manager and not that of KRS or the limited partnership
- Current or former Kentucky Officials (federal, state, and local government), KRS Board of Trustees members, KRS employees, or consultants to KRS that are receiving any fees or compensation from the External Manager and/or placement agent
- The names of any current or former Kentucky elected or appointed government officials (federal, state, and local government) KRS Board of Trustees members, employees, or consultants of KRS, or any other person, if any, who suggested the retention of the placement agent
- Evidence of the regulatory agencies, if any, in any Federal, state or foreign jurisdiction the placement agent or any of its affiliates are registered with, such as the Securities and Exchange Commission ("SEC"), FINRA, or any similar regulatory agency
- A resume for each officer, partner or principal of the Placement Agent detailing the person's education, professional designations, regulatory licenses and investment and work experience
- A description of the services to be performed by the Placement Agent
- A statement whether the Placement Agent, or any of its affiliates, is registered as a lobbyist with any and all Kentucky state and local (county) governments
- A statement by the External Manager and/or placement agent representing and warranting the accuracy of the information provided to KRS regarding the Statement of Disclosure in any final written agreement with a continuing obligation to update any such information within 10 business days of any change in the information.

In the event a placement agent is expected to receive remuneration for a KRS investment, KRS Staff will notify the Investment Committee in the memorandum discussing the recommended/approved investment. If a manager breaches the Policy, Staff will notify the Investment Committee as soon as practicable.

##### **B. KRS Staff Responsibilities**

- Providing the public with disclosure by posting a copy of this Policy on KRS' website
- Implementing this Policy for KRS
- Providing regular disclosure updates to the KRS Investment Committee and the Board of Trustees.

All parties responsible for implementing, monitoring and complying with this Policy shall consider the spirit as well as the literal expression of the Policy.

**V. Conflict of Interest**

All persons and entities contracting with KRS shall certify that they are legally capable of entering into a binding contract and authorized to do so; that they are not nor shall be in violation of any Kentucky law, statute or regulation pertaining to a conflict of interest including, but not limited to, KRS 121.056; and that they are not nor shall be in violation of any provision of KRS Chapter 11A or any regulation promulgated thereunder, or any law or regulation pertaining to the Kentucky Registry of Election Finance and the reporting requirements thereof.

All persons and entities seeking to or actually contracting with KRS shall disclose all relationships and potential conflicts of interest with any KRS Staff, Committee or Board Member. Subsequent discovery of any undisclosed conflict may be considered a breach of contract and may result in immediate termination of any agreements without penalty or fee to KRS.

**Glossary of Terms**

**KRS Vehicle**

A partnership, limited liability company, account or other investment vehicle in which KRS is the investor.

**Consultant**

Consultant refers to individuals or firms, and includes Key Personnel of Consultant firms, who are contractually retained or have been appointed to KRS to provide investment advice to KRS but who do not exercise investment discretion.

**External Manager**

An asset management firm that is seeking to be, or has been, retained by KRS or by a KRS Vehicle to manage a portfolio of assets (including securities) for a fee. The External Manager usually has full discretion to manage KRS assets, consistent with investment management guidelines provided by KRS and fiduciary responsibility.

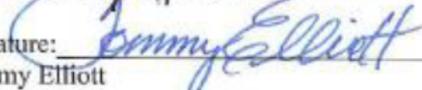
**Placement Agent**

Any person or entity hired, engaged or retained by or acting on behalf of an External Manager or on behalf of another Placement Agent as a finder, solicitor, marketer, consultant, broker or other intermediary to raise money or investments from or to obtain access to KRS, directly or indirectly, including without limitation through a KRS Vehicle.

**Signatories**

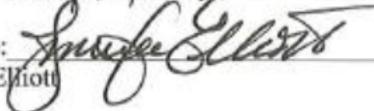
As Adopted By The Investment Committee

Date: May 3, 2011

Signature:   
Tommy Elliott

As Adopted By The Board of Trustees

Date: May 19, 2011

Signature:   
Jennifer Elliott

**EXHIBIT B – Conflict of Interest Statement**

**KENTUCKY RETIREMENT SYSTEMS  
CONFLICT OF INTEREST STATEMENT**

In consideration of the investment by Kentucky Retirement Systems and Kentucky Retirement Systems Insurance Trust Fund (collectively, "KRS") in a vehicle or account ("Account") managed by Pzena Investment Management, LLC (the "Manager"), the Manager acknowledges the need to maintain the public's confidence and trust in the integrity of KRS and the Commonwealth of Kentucky. In light of the forgoing, the Manager agrees to:

- Diligently identify, disclose, avoid and manage conflicts of interest that may arise through its relationship with KRS.
- Conduct activities with KRS so as not to advance or protect its own interests or the private interests of others with whom it has a relationship in a way that is detrimental to the interests of KRS.
- Conduct its activities in a manner to best promote the interests of KRS, but subject to the Manager's duty which requires it not to put the interests of one investor ahead of those of another investor.
- Upon discovery of an actual or potential conflict of interest involving KRS, disclose such conflict of interest to KRS and work with KRS in good faith to resolve or mitigate such conflict.
- Not engage directly or indirectly in any financial or other transactions with a trustee or employee of KRS that would violate the standards of the Executive Branch Ethics provisions as set forth in KRS Chapter 11A.

Agreed this the 7<sup>th</sup> day of June, 2019

MANAGER

For itself and on behalf of the Account

By: Joan Berger  
Name: Joan F. Berger  
Title: General Counsel

(Rev. Feb 2018)



## Kentucky Retirement Systems

### Statement of Disclosure and Placement Agents – Manager Questionnaire

1. Did your firm use a placement agent as defined in the KRS “Statement of Disclosure and Placement Agents” policy in an effort to solicit an Investment from KRS Please indicate fund vehicle title if relevant? If yes, please continue to question 2; if no, please proceed to question 10.

*No, we did not use a third-party placement agent in an effort to solicit an investment from KRS.*

2. Please disclose the name of the placement agency used, the names of the individuals contracted by the placement agency (either as employees or as sub-agents) in order to solicit an investment from KRS, and the fees paid or payable to the placement agent in connection with a prospective KRS investment.

*N/A*

3. Please represent that any fees paid to placement agents are the sole obligation of the investment manager and not that of KRS or the limited partnership.

*N/A*

4. Please disclose the names of any current or former Kentucky elected or appointed government officials (federal, state, and local government), KRS Board of Trustees members, employees, or consultants of KRS, or any other person, if any, who suggested the retention of the placement agent.

*N/A*

5. Please provide evidence of the regulatory agencies, if any, in any Federal, state or foreign jurisdiction the placement agent or any of its affiliates are registered with, such as the Securities and Exchange Commission (“SEC”), FINRA, or any similar regulatory agency.

*N/A*

6. Please provide a resume for each officer, partner or principal of the Placement Agent detailing the person’s education, professional designations, regulatory licenses and investment and work experience.

*N/A*

7. Please describe the services to be performed by the Placement Agent.

*N/A*

8. Please disclose whether the Placement Agent, or any of its affiliates, is registered as a lobbyist with any and all Kentucky state and local (county) governments.

*N/A*

9. Please disclose any political contributions made by the Placement Agent to any Kentucky official within the prior 2 years.

N/A

10. Please disclose the names of any current or former Kentucky elected or appointed government officials (federal, state, and local government) KRS Board of Trustees members, employees, or consultants of KRS that are receiving any fees or compensation from the External Manager and/or placement agent. Please disclose any additional known relationships or conflicts with same.

None.

11. Please disclose any political contributions made by External Manager or principals of the External Manager in the prior 2 years.

*There were no political contributions made by the External Manager or principals of the External Manager to Kentucky political officials in the prior two years ended March 31, 2019.*

12. Please disclose whether any principals of the firm have been involved in any regulatory proceedings, and if so, details concerning the same.

*There is no material regulatory action pending or, to the best of our knowledge, threatened, against the External Manager or any of its principals relating to the business of the firm in the past ten years ended March 31, 2019.*

13. Please provide a statement representing and warranting the accuracy of the information provided to KRS regarding the Statement of Disclosure, and acknowledge that similar language will be included in any final written agreement with a continuing obligation to update any such information within 10 business days of any change in the information.

*I confirm the information provided herein is accurate to the best of my knowledge, and I acknowledge that similar language will be included in any final written agreement between the External Manager and KRS, with a continuing obligation to update any such information within 10 business days of any change in such information.*

**Pzena Investment Management, LLC**



External Manager Signature

Name: Joan F. Berger

Title: General Counsel

June 7, 2019

Date



**Kentucky Retirement Systems**  
Statement of Disclosure and Placement Agents  
Approved May 2011

### **I. Purpose**

This Policy sets forth the disclosure requirements which must be satisfied prior to any Kentucky Retirement Systems ("KRS") investment if a placement agent is involved. KRS shall require the disclosure of detailed information regarding payments and fees in connection with KRS' investments in or through External Managers (as defined herein), broker/dealers, Placement Agents (as defined herein) and those having or conducting business with KRS. This Policy is intended to apply broadly to all of the types of investment advisors with whom KRS conducts or potentially conducts business with including general partners, managers, investment managers and sponsors of hedge funds, funds of funds, private equity funds, real estate funds, infrastructure funds, as well as investment managers retained pursuant to a contract. KRS requires broad, timely, and annual updated disclosures of relationships, compensation and fees. The goal of this Policy is to bring transparency to placement agent activity in connection with KRS' investments and help ensure that KRS' investment decisions are made solely on the merits of the investment opportunity and in a manner consistent with the responsibilities of the Board of Trustees and individuals who owe a fiduciary duty to KRS.

### **II. Objectives**

The role and function of Placement Agents are to provide sales and marketing services to investment management firms. Placement Agents exist because, with the exception of the largest firms (i.e., private equity and hedge fund general partnerships), many of these investment managers are not equipped to raise their investment funds independently. Most External Managers do not have the resources internally to access the capital markets. They require services such as crafting presentations, drafting, proofing and distributing private placement memorandums, sorting the potential universe of limited partners and determining how to access those limited partners, arranging meetings with the limited partners, handling follow-up meetings, assisting in the due diligence process including managing on-site due diligence meetings, and the closing process.

External investment managers in both the public and private markets use Placement Agents to assist them raise capital from various sources. Therefore, the Kentucky Retirement Systems' objectives are:

1. To ensure that KRS' investment decisions are consistent with KRS' overall Investment Policy Statements
2. To supplement the due diligence and information available to KRS Board Members, Staff, and Consultants when evaluating an investment opportunity
3. To prevent impropriety, conflicts of interest, and/or the appearance of improprieties and/or conflicts of interest
4. Provide transparency and confidence in KRS investment decision-making and process

### **III. Application**

This Policy applies to all agreements with External Managers that are entered into after the date this Policy is adopted. This Policy also applies to existing agreements with External Managers if, after the date this Policy is adopted, the term of the agreement is extended, there is any increased commitment of

funds by KRS pursuant to the existing agreement or there is a material amendment to the substantive terms of an existing agreement, including the fees or compensation payable to the External Manager.

#### **IV. Responsibilities:**

##### **A. External Manager's Responsibilities**

Prior to KRS investing with any manager, KRS Staff shall obtain a written representation from the investment manager, in a form acceptable to KRS' Legal Office, stating that the investment manager has not used a placement agent in connection with the KRS investment opportunity, or if the manager has used a placement agent, it will disclose the following to KRS:

- The name of the placement agent
- The fee paid or payable to the placement agent
- Representation that the fee is the sole obligation of the investment manager and not that of KRS or the limited partnership
- Current or former Kentucky Officials (federal, state, and local government), KRS Board of Trustees members, KRS employees, or consultants to KRS that are receiving any fees or compensation from the External Manager and/or placement agent
- The names of any current or former Kentucky elected or appointed government officials (federal, state, and local government) KRS Board of Trustees members, employees, or consultants of KRS, or any other person, if any, who suggested the retention of the placement agent
- Evidence of the regulatory agencies, if any, in any Federal, state or foreign jurisdiction the placement agent or any of its affiliates are registered with, such as the Securities and Exchange Commission ("SEC"), FINRA, or any similar regulatory agency
- A resume for each officer, partner or principal of the Placement Agent detailing the person's education, professional designations, regulatory licenses and investment and work experience
- A description of the services to be performed by the Placement Agent
- A statement whether the Placement Agent, or any of its affiliates, is registered as a lobbyist with any and all Kentucky state and local (county) governments
- A statement by the External Manager and/or placement agent representing and warranting the accuracy of the information provided to KRS regarding the Statement of Disclosure in any final written agreement with a continuing obligation to update any such information within 10 business days of any change in the information.

In the event a placement agent is expected to receive remuneration for a KRS investment, KRS Staff will notify the Investment Committee in the memorandum discussing the recommended/approved investment. If a manager breaches the Policy, Staff will notify the Investment Committee as soon as practicable.

##### **B. KRS Staff Responsibilities**

- Providing the public with disclosure by posting a copy of this Policy on KRS' website
- Implementing this Policy for KRS
- Providing regular disclosure updates to the KRS Investment Committee and the Board of Trustees.

All parties responsible for implementing, monitoring and complying with this Policy shall consider the spirit as well as the literal expression of the Policy.

**V. Conflict of Interest**

All persons and entities contracting with KRS shall certify that they are legally capable of entering into a binding contract and authorized to do so; that they are not nor shall be in violation of any Kentucky law, statute or regulation pertaining to a conflict of interest including, but not limited to, KRS 121.056; and that they are not nor shall be in violation of any provision of KRS Chapter 11A or any regulation promulgated thereunder, or any law or regulation pertaining to the Kentucky Registry of Election Finance and the reporting requirements thereof.

All persons and entities seeking to or actually contracting with KRS shall disclose all relationships and potential conflicts of interest with any KRS Staff, Committee or Board Member. Subsequent discovery of any undisclosed conflict may be considered a breach of contract and may result in immediate termination of any agreements without penalty or fee to KRS.

**Glossary of Terms**

**KRS Vehicle**

A partnership, limited liability company, account or other investment vehicle in which KRS is the investor.

**Consultant**

Consultant refers to individuals or firms, and includes Key Personnel of Consultant firms, who are contractually retained or have been appointed to KRS to provide investment advice to KRS but who do not exercise investment discretion.

**External Manager**

An asset management firm that is seeking to be, or has been, retained by KRS or by a KRS Vehicle to manage a portfolio of assets (including securities) for a fee. The External Manager usually has full discretion to manage KRS assets, consistent with investment management guidelines provided by KRS and fiduciary responsibility.

**Placement Agent**

Any person or entity hired, engaged or retained by or acting on behalf of an External Manager or on behalf of another Placement Agent as a finder, solicitor, marketer, consultant, broker or other intermediary to raise money or investments from or to obtain access to KRS, directly or indirectly, including without limitation through a KRS Vehicle.

**Signatories**

As Adopted By The Investment Committee

Date: May 3, 2011

Signature: \_\_\_\_\_

Tommy Elliott

As Adopted By The Board of Trustees

Date: May 19, 2011

Signature: \_\_\_\_\_

Jennifer Elliott

# US Small Cap and Emerging Market Search

*Investment Committee –  
June 18, 2019*



# RECOMMENDATION

Staff & consultant recommend the KRS Investment Committee fund ...

- US micro cap allocation to be managed by ...
  - Next Century Growth Investors, LLC
- Dedicated emerging market allocation to be managed by ...
  - JP Morgan Asset Management Inc.
  - Pzena Investment Management, LLC
- Transition from BlackRock ACWI Ex-US Index strategy to the BlackRock World Ex-US Index product.

\*No placement agents have been involved or will be compensated as a result of this recommendation.

# INTRODUCTION / PROCESS

## **Staff & consultant studied public equity structure ...**

- Market segment access
- Efficient use of fee dollars

## **Active management (fee dollars) utilized where the chance of outperforming is greater ...**

- Less efficient markets
  - US – mid and small caps
  - Non-US / Emerging Markets

## **Generally, KRS will tilt ...**

- Passively within the US portfolio, with active in the smaller cap ranges
- Active within the Non-US portfolio, especially emerging markets

## **Same basic process for both searches for narrowing candidates down to finalists**

- Wilshire database
  - Minimum criteria set to cull list to manageable short list
- Staff added interesting names that may not have populated in list
- Additional cut
  - Capture ratios, risk/return profiles, active share, etc.
- RFI sent to remaining candidates
  - Firm structure, staffing, product stability, investment team/process, etc.
- Further narrowing for onsite discussions at KRS
- Finalists selected for presentation to Investment Committee
- Onsite interviews with successful candidates at their offices prior to funding

# NEW CENTURY GROWTH INVESTORS

## Firm

- Partnership founded in 1998 & headquartered in Minneapolis
- Firm AUM: \$770m across US cap spectrum
  - \$210m in micro cap (capacity at \$400-\$500m)

## Investment Team

- Five principals of the firm manage the strategy & serve as PM/analysts; no PM has left since inception

## Investment Philosophy

- Invest in high quality fast growing companies in combination with a strong sell discipline

## Investment Process

- Universe: below \$1 billion market cap & 15% top line growth that is organic & sustainable
- Ideal candidates: disruptive, strong competitive advantage, large & growing end markets, strong management
- Sell discipline is key to maintain a healthy portfolio
  - Extreme valuation, fundamental disappointment, market cap forced ensures rotation

## Client Stability

- Experienced asset downtrend for past several years (AUM declines across all strategies)
  - Underperformance: rotation into high yielders during QE, Micro cap strategy struggled in 2014 & 2015
  - A consultant recommended terminating a couple of the firm's strategies which led to \$1b exodus
- Performance rebounded in 2017 & 2018; client assets appear to have stabilized
- Wilshire's manager research group conducted an additional review: firm ranking remained stable

## Performance

Next Century Growth Investors, LLC								
As of: 03/31/19	YTD	1 YR	3 YRS	5 YRS	10 YRS	15 YRS	SI	
NCG Micro Cap Growth Composite (GR)	15.2	27.9	34.0	13.9	22.1	13.0	17.3	
Russell Microcap Growth Index	16.0	-1.4	10.8	3.5	14.8	5.6	9.0	
*Inception Date: 01/01/03								

## Fees

- On \$50-75 million, [REDACTED]

# JP MORGAN ASSET MANAGEMENT

## Firm

- Wholly owned by JP Morgan Chase, publicly traded on the NYSE
- Firm AUM: \$1.7 T; \$480 billion in public equities
  - \$1.9b in GEM emerging market strategy

## Investment Team

- Lead PM (7yrs on strategy) & two back-up / co- PMs
- Supported: 43 researchers – dedicated sector and/or regional; macro analysts that provide top-down insights

## Investment Philosophy

- Invest in high quality businesses over the long-term
- Two key elements: understanding of business & echo systems it operates; correctly valuing the growth potential
- Confidence in management’s ability to exploit opportunities
- Small & mid-caps biased: best way to access emerging market story, secular themes of infrastructure & consumption

## Investment Process

- Is this a business you would like to own
  - Fundamental – economics of business, how durable are expected earnings, & quality of governance
- If so, at what price would you buy or sell it
  - 5-YR expected return built: company (earnings growth & dividends) & market (valuation & currency); seek companies that create value internally

## Client Stability

- Several years of continued inflows: over \$1b across 17 clients in past 5 years

## Performance

J.P. Morgan Asset Management								
As of: 03/31/19	YTD	1 YR	3 YRS	5 YRS	7 YRS	10 YRS	SI	
Global Emerging Markets Discovery (GR)	14.5	-3.2	15.7	8.5	7.2	16.7	11.7	
MSCI Emerging Markets IMI Index	9.7	-8.0	10.1	3.5	2.7	9.1	6.3	
MSCI Emerging Markets Index	9.9	-7.4	10.7	3.7	2.7	8.9	7.1	
MSCI Emerging Markets Growth Index	12.0	-9.5	11.8	5.0	4.4	10.0	6.9	
*Inception Date: 11/01/97								

## Fees

- On \$175 million, effective rate of ██████████

# PZENA INVESTMENT MANAGEMENT

## Firm

- Headquartered in New York & publicly traded on the NYSE; current employees own 55% & retain 95% of voting
- Firm AUM: \$37.1b suite of value products across cap spectrum & geography
  - \$700m in strategy (Note: 3.5 yrs track record; same process/team as \$3.9b flagship (2008))

## Investment Team

- Utilizes a portfolio manager team approach (4); PMs are also analysts
- Supported by shared research group of 25 analysts organized as sector globalists

## Investment Philosophy

- Classic value investor – buy good businesses at low prices (underperforming historical earnings power)
- Belief that most investors are leery of business that appear to have issues & avoid those that lack earnings clarity
  - Valuations are biased negatively providing skilled value investors opportunity

## Investment Process

- Bottom-up fundamental but incorporates a top-down macro view in the process
  - Countries as assessed a discount rate (spread between US Treasury & sovereign bond spreads)
    - Fairer comparisons of normalized earnings between regions
- Universe screened: low price-to-normalized earnings & below historical norms; cheapest quintile is the starting point
- Full workup for those interesting opportunities; utilize a negative external analyst to argue bear case

## Client Stability

- Firm AUM has been relatively stable
- Strategy: inflows of \$400m over last few years & one account loss of \$519m (client moved to LDI model)

## Performance

Pzena Investment Management, LLC							
As of: 03/31/19	YTD	1 YR	3 YRS	5 YRS	10 YRS	SI	
Pzena Emerging Markets Select (GR)	7.4	-2.4	13.1	n/a	n/a	11.8	
MSCI Emerging Markets Index	9.9	-7.4	10.7	n/a	n/a	9.1	
MSCI Emerging Markets Value Index	7.8	-5.3	9.5	n/a	n/a	8.1	
*Inception Date: 11/01/15							
Pzena Emerging Markets Focused (GR)	7.6	-3.2	13.4	3.9	10.9	3.4	
MSCI Emerging Markets Index	9.9	-7.4	10.7	3.7	8.9	0.9	
MSCI Emerging Markets Value Index	7.8	-5.3	9.5	2.2	7.8	0.5	
*Inception Date: 01/01/08							

## Fees

- On \$175 million, effective rate of [REDACTED]

# IMPLEMENTATION & PORTFOLIO SIZING

## Next Century

- KRS had \$250m in dedicated US small cap core strategy; 8% of US portfolio
- Staff & consultant would like to overweight small caps; 10% target of US = \$315m
- Initial funding from cash of \$50m with target of \$2.5% of US (\$79m)
- Asking for approval of up to 3.5% allow for future growth & rebalancing

## JP Morgan & Pzena

- Currently access EM though MSCI ACWI-Ex US mandates
  - 40% of NonUS exposure is through passive MSCI ACWI-Ex US mandates
    - Passive exposure to EM is not consistent with belief that active management can add value
- 25% of MSCI ACWI Ex-US Index is EM; funding would come from that carve out
  - 10% of NonUS exposure would be utilized for funding (\$350m)
- Wilshire optimizer funds the two candidates rather closely
- Initial funding of 5% of total NonUS allocation to each mandate (\$175m each)
- Optimizer suggests larger investment; staff is requesting up to 7% each of NonUS portfolio (\$245m each)

**Note: The remaining portion of the MSCI ACWI Ex-US mandate would be transitioned to a MSCI World Ex-US mandate run by BlackRock.**

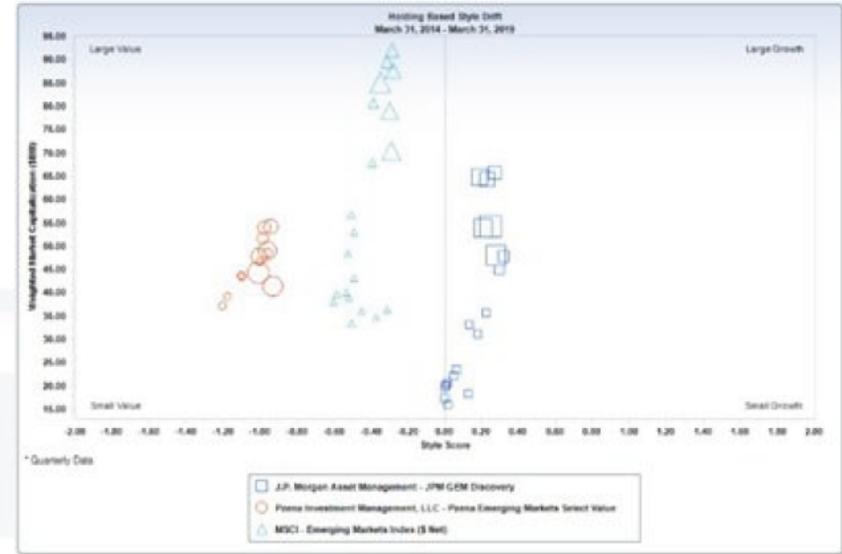
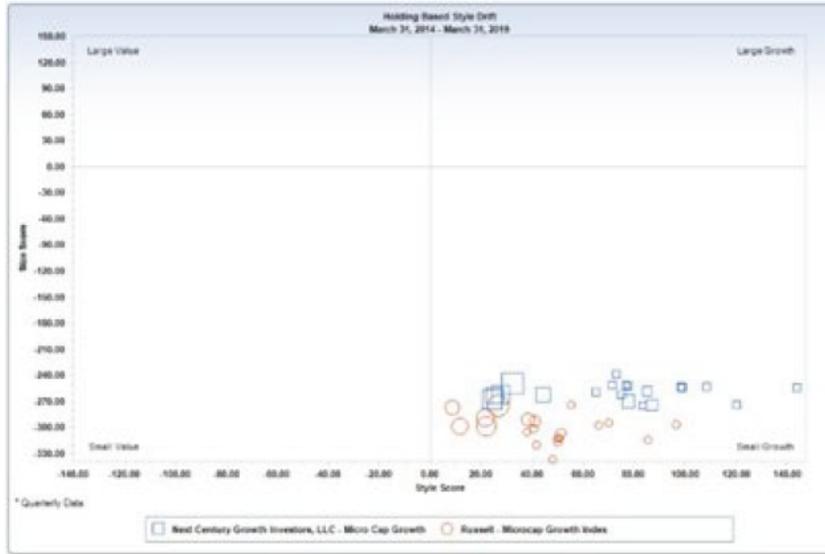
BlackRock						
As of: 03/31/19	YTD	1 YR	3 YRS	5 YRS	10 YRS	
BlackRock World Ex-US	10.6	-2.6	7.8	2.6	9.3	
MSCI World Ex-US Index	10.5	-3.1	7.3	2.2	8.8	

# RECOMMENDATION

- Next Century Growth Investors, LLC – Micro Cap Growth Strategy
  - Initial Funding \$50-75 million (2.5%) with option to grow/add to total of 3.5% of U.S. allocation.
- J.P. Morgan Asset Management Inc. – Global Emerging Markets (GEM) Discovery Strategy
  - Initial Funding \$175 million (5%) with option to grow/add to total of 7% of Non-U.S. allocation.
- Pzena Investment Management, LLC – Emerging Markets Select Value Strategy
  - Initial Funding \$175 million (5%) with option to grow/add to total of 7% of Non-U.S. allocation.
- Transition the remaining balance of the BlackRock ACWI-Ex US Index portfolio to the BlackRock World Ex-US Index strategy.

# APPENDIX

CHARTS PROVIDED BY WILSHIRE & ASSOCIATES



	BlackRock - MSCI World Index (Ex US) Index Fund	American Century Investment Management, Inc. - Non-U.S. Concentrated Growth	Franklin Templeton Investments - Franklin All Country World ex-U.S. Equity	Lazard Asset Management LLC - International Equity Plus (ACW ex-US)	LSV Asset Management - International Concentrated Value Equity	Northern Trust - NT EMERGING MARKETS SMALL CAP INDEX STRATEGY	Northern Trust - NT World ex US Small Cap Index Equity Strategy	J.P. Morgan Asset Management - JPM GEM Discovery	Pzena Investment Management, LLC - Pzena Emerging Markets Select Value
Correlation									
BlackRock - MSCI World Index (Ex US) Index Fund	1.00								
American Century Investment Management, Inc. - Non-U.S. Concentrated Growth	0.26	1.00							
Franklin Templeton Investments - Franklin All Country World ex-U.S. Equity	0.19	0.54	1.00						
Lazard Asset Management LLC - International Equity Plus (ACW ex-US)	0.30	0.27	0.10	1.00					
LSV Asset Management - International Concentrated Value Equity	0.03	-0.38	-0.22	-0.03	1.00				
Northern Trust - NT EMERGING MARKETS SMALL CAP INDEX STRATEGY	-0.80	-0.23	-0.10	-0.22	-0.08	1.00			
Northern Trust - NT World ex US Small Cap Index Equity Strategy	0.22	0.34	0.62	0.14	-0.07	-0.22	1.00		
J.P. Morgan Asset Management - JPM GEM Discovery	-0.74	-0.08	-0.07	-0.08	-0.19	0.62	-0.30	1.00	
Pzena Investment Management, LLC - Pzena Emerging Markets Select Value	-0.62	-0.44	-0.61	-0.23	0.19	0.37	-0.65	0.30	1.00



Prepared for



# Kentucky Retirement Systems

Small Cap & Emerging Markets Manager Search



David Lindberg, CFA – Managing Director  
Christopher S. Tessman – Sr. Vice President  
Craig Morton, CFA – Vice President

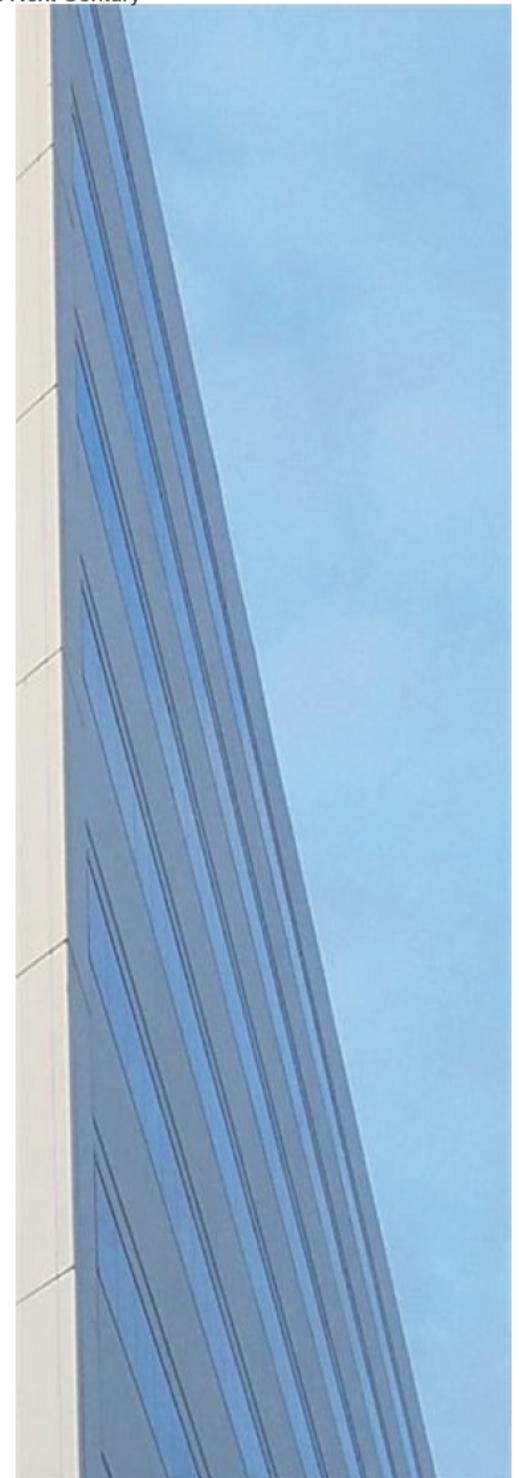
June 18, 2019

Wilshire Consulting  
AGENDA

Emerging Markets Manager Search

Small Cap Manager Search

Wilshire Recommendations





# Emerging Markets Manager Search

Wilshire Consulting



# Emerging Markets Manager Search

- Using various qualitative and quantitative criteria, the Wilshire Investment Manager Database was narrowed to three RFP Invitees, which led to four in-person interviews.





Wilshire Consulting

## Emerging Market In-Person Interviews

- Baillie Gifford
- **Conner, Clark, Lunn**
- **J.P Morgan**
- **Pzena**
  
- **Proposed addition**
- Considered, but not selected
- **Eliminated from consideration**



Wilshire Consulting

## Emerging Markets Search Results

- In-depth conversations on four strategies across four investment management firms
- Two strategies were decided upon that would pair nicely in the KRS Non U.S. Equity composite
  - J.P. Morgan (Emerging Markets Growth)
  - Pzena (Emerging Markets Value)
- Strategies will primarily be funded by transitioning passive/index strategy from ACWI ex U.S. to a World Ex U.S. mandate



# Small Cap Manager Search

Wilshire Consulting



## Small Cap Manager Search

- Using various qualitative and quantitative criteria, the Wilshire Investment Manager Database was narrowed to three RFP Invitees, which led to two in-person interviews.



Wilshire Consulting



## Small Cap Manager Search

- Using various qualitative and quantitative criteria, the Wilshire Investment Manager Database was narrowed to three RFP Invitees, which led to one in-person interview.



Wilshire Consulting



## Small Cap Manager Search

- Using various qualitative and quantitative criteria, the Wilshire Investment Manager Database was narrowed to three RFP Invitees, which led to two in-person interviews.



Wilshire Consulting



# Small Cap Manager Search

- Using various qualitative and quantitative criteria, the Wilshire Investment Manager Database was narrowed to three RFP Invitees, which led to two in-person interviews.



Wilshire Consulting



## Small Cap In-Person Interviews

- Small Core
  - Kayne Anderson
  - Jacobs Levy
- Small Value
  - Pzena
  - Jacobs Levy
- Small Growth
  - Kayne Anderson
- Microcap
  - Next Century
  - Lord Abbett

- Proposed addition
- Considered, but not selected
- Eliminated from consideration



## Wilshire Consulting

# Small Cap Search Results

- In-depth conversations on seven strategies across five investment management firms
- Next Century – Microcap Growth product was selected to be added to the U.S. Equity Portfolio
- Pzena, on short-notice, was unable to have the PM for the Small Value product available for in-person interview.
  - Similar process to selected Emerging Markets strategy
  - Will interview PM while equity officer & consultant are on-site this summer
  - Continued search for other potential candidates in this space
- Staff and consultant will continue to search for high conviction Small Growth strategy to pair with Next Century
- Core portfolio will continue to be anchored by the Northern Trust enhanced index strategy for the immediate future



## Wilshire Consulting Recommendations

- Non U.S. Equity Composite
  - Transition passive mandate from MSCI - ACWI ex U.S. to MSCI - World ex U.S. to avoid investing passively in emerging markets
  - Reduce passive mandate by 25% and redeploy those assets to active emerging markets
    - » J.P. Morgan Asset Management – JPM GEM Discovery
    - » Pzena Investment Management, LLC – Pzena Emerging Markets Select Value
- U.S. Equity Composite
  - Add NextCentury Growth Investors, LLC – Microcap Growth to the U.S. Equity composite
  - Continued search for high conviction managers seeking aggressive alpha

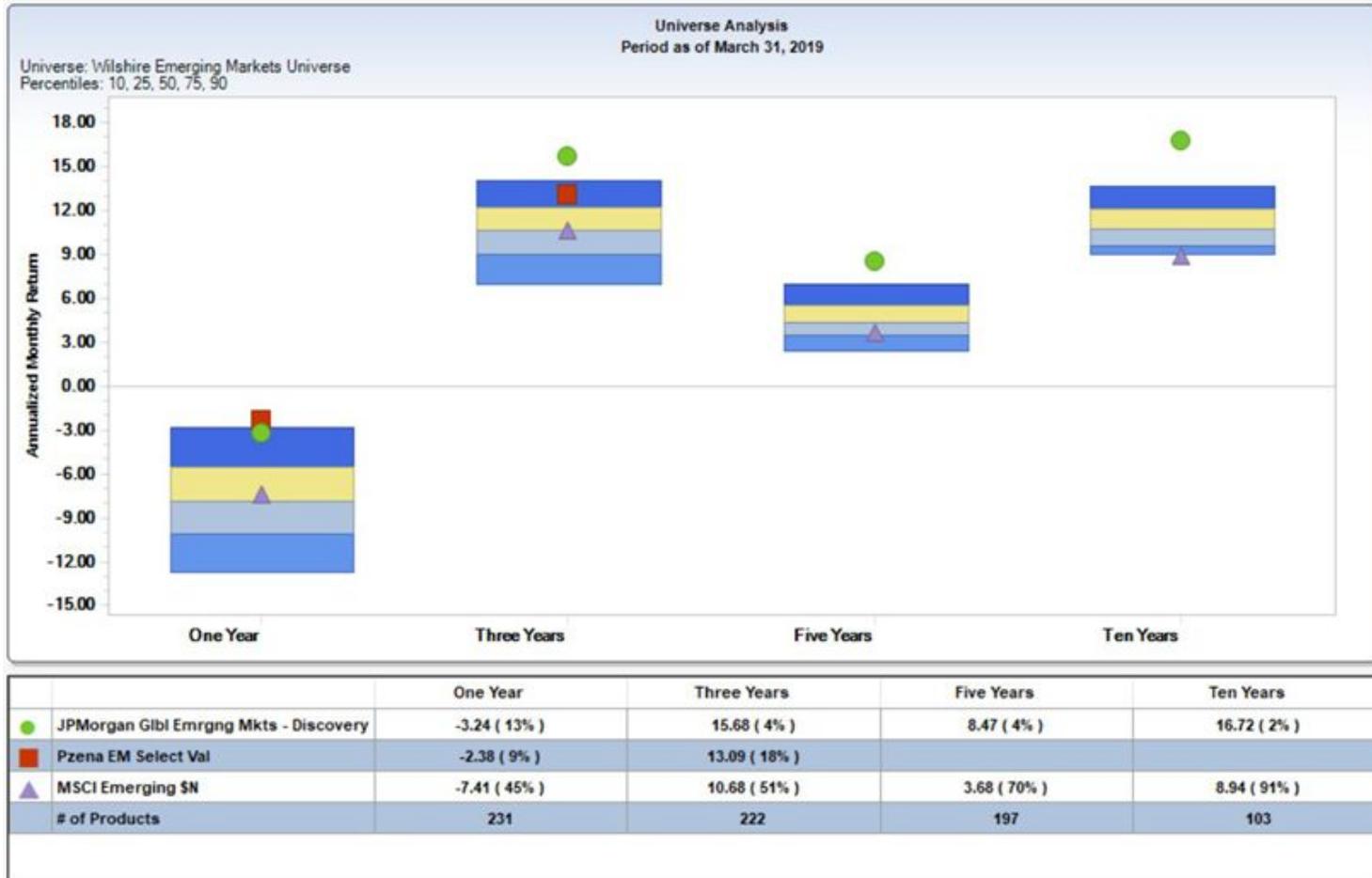


# Appendix

Wilshire Consulting



# Emerging Market Peer Analysis



Wilshire Consulting



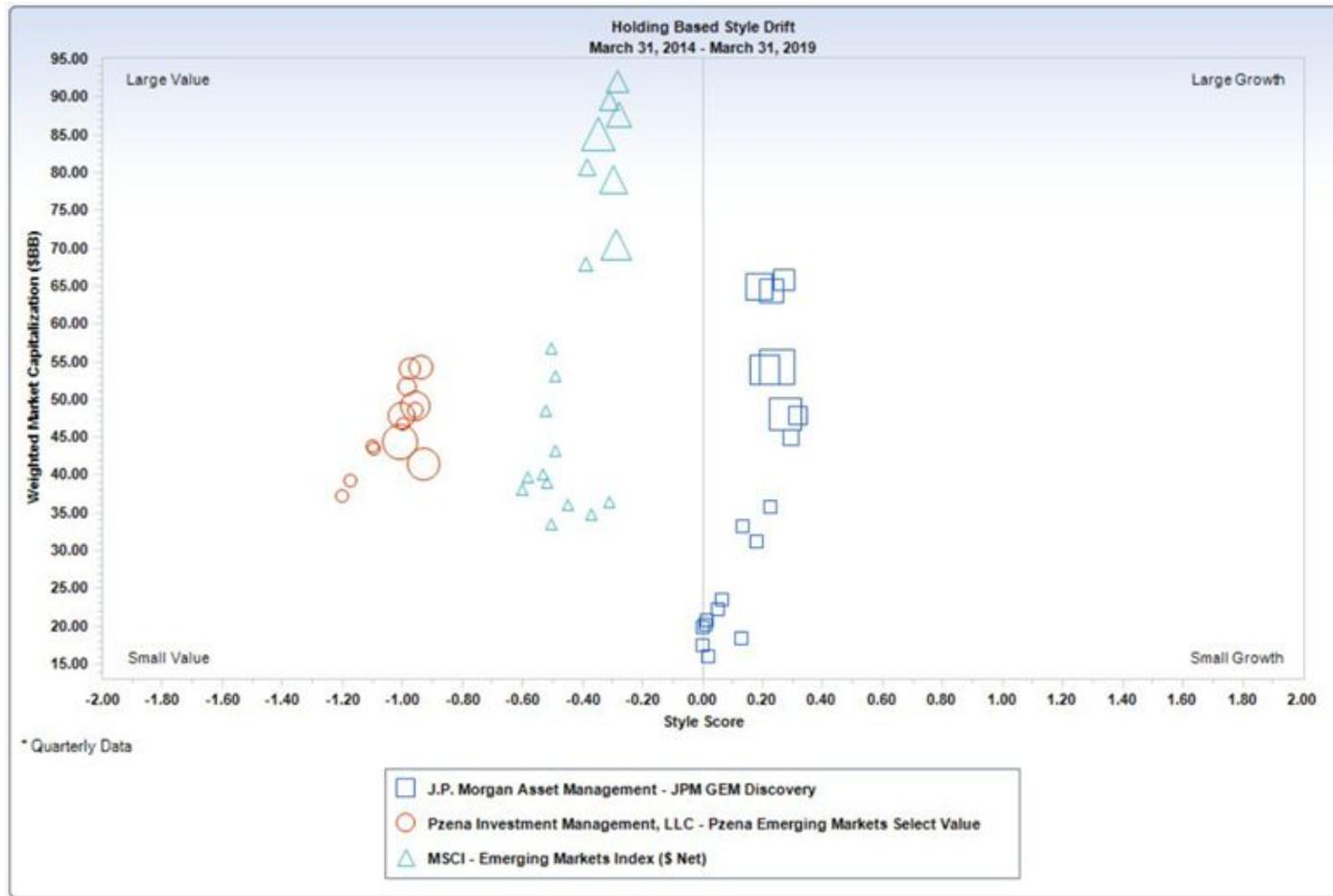
# Emerging Market Peer Analysis



Wilshire Consulting



# Emerging Market Style Analysis





# Emerging Market Correlation Analysis

Correlation	BlackRock - MSCI World Index (Ex US) Index Fund	American Century Investment Management, Inc. - Non-U.S. Concentrated Growth	Franklin Templeton Investments - Franklin All Country World ex-U.S. Equity	Lazard Asset Management LLC - International Equity Plus (ACW ex-US)	LSV Asset Management - International Concentrated Value Equity	Northern Trust - NT EMERGING MARKETS SMALL CAP INDEX STRATEGY	Northern Trust - NT World ex US Small Cap Index Equity Strategy	J.P. Morgan Asset Management - JPM GEM Discovery	Pzena Investment Management, LLC - Pzena Emerging Markets Select Value
BlackRock - MSCI World Index (Ex US) Index Fund	1.00								
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Pzena Investment Management, LLC - Pzena Emerging Markets Select Value	-0.62	-0.44	-0.61	-0.23	0.19	0.37	-0.65	0.30	1.00

\* Pzena Emerging Markets Select Equity correlations based on available performance history of December 31, 2015 through March 31, 2019

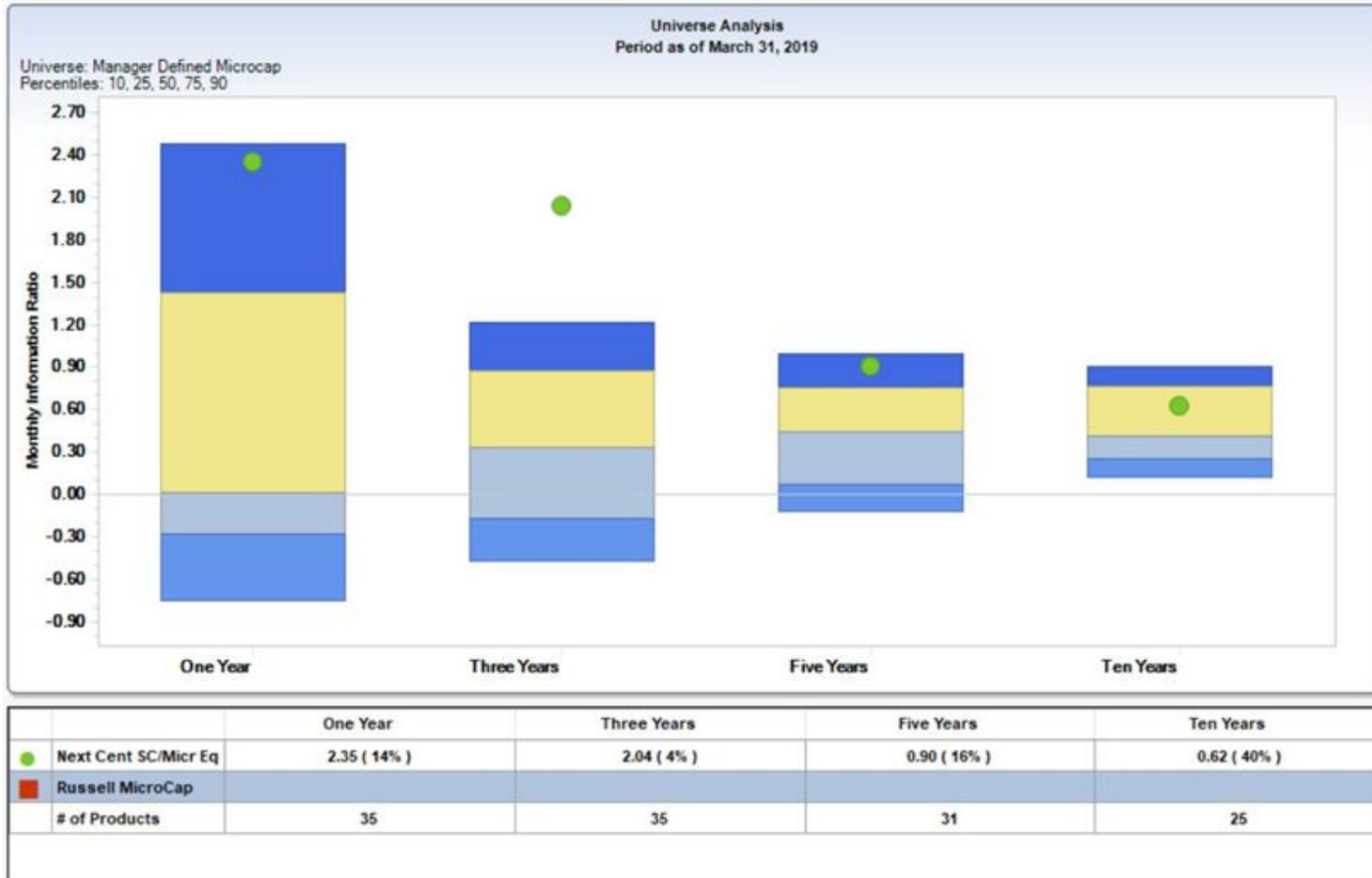


# Wilshire Consulting Microcap Peer Analysis



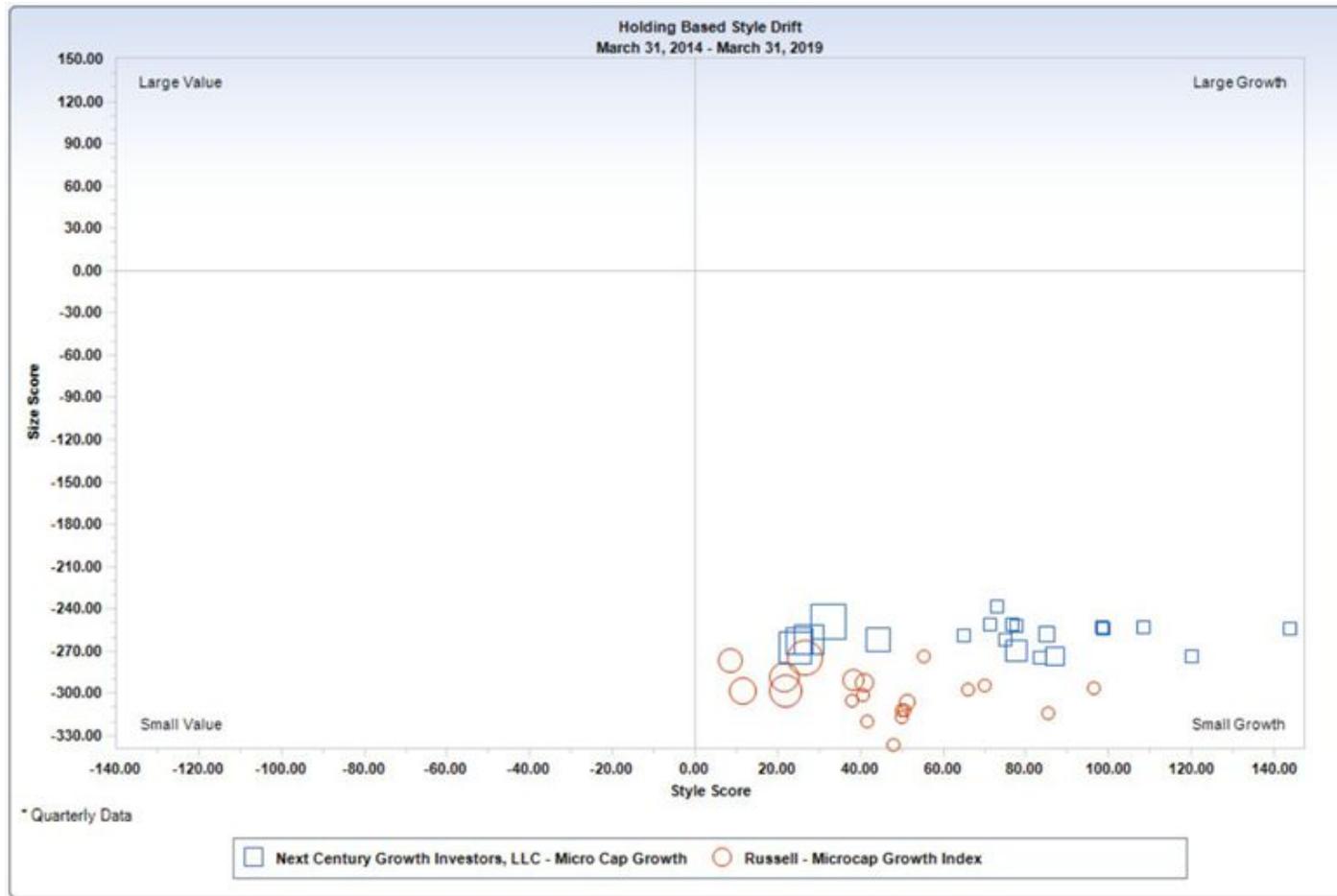


# Wilshire Consulting Microcap Peer Analysis





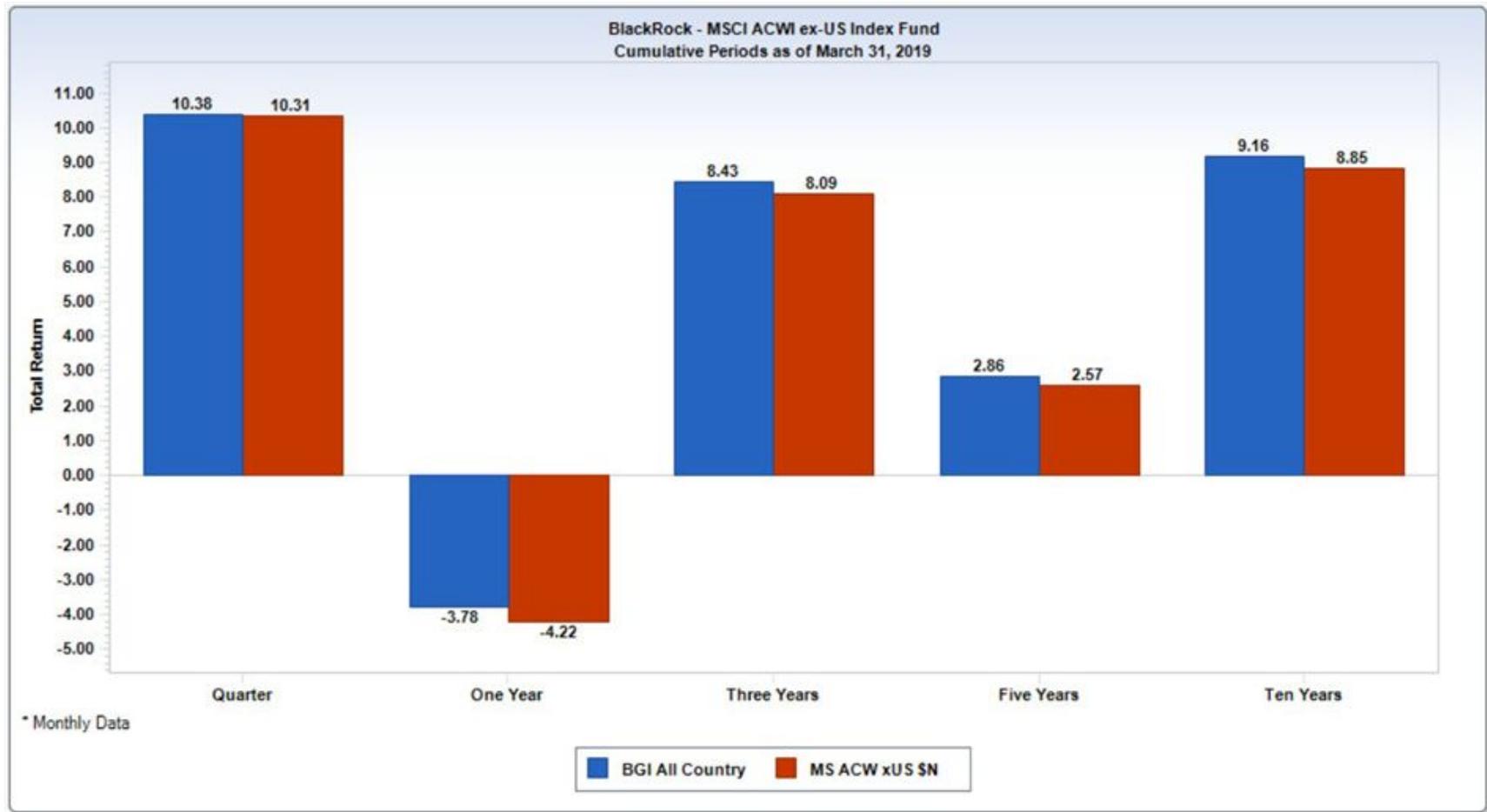
# Wilshire Consulting Microcap Style Analysis



Wilshire Consulting



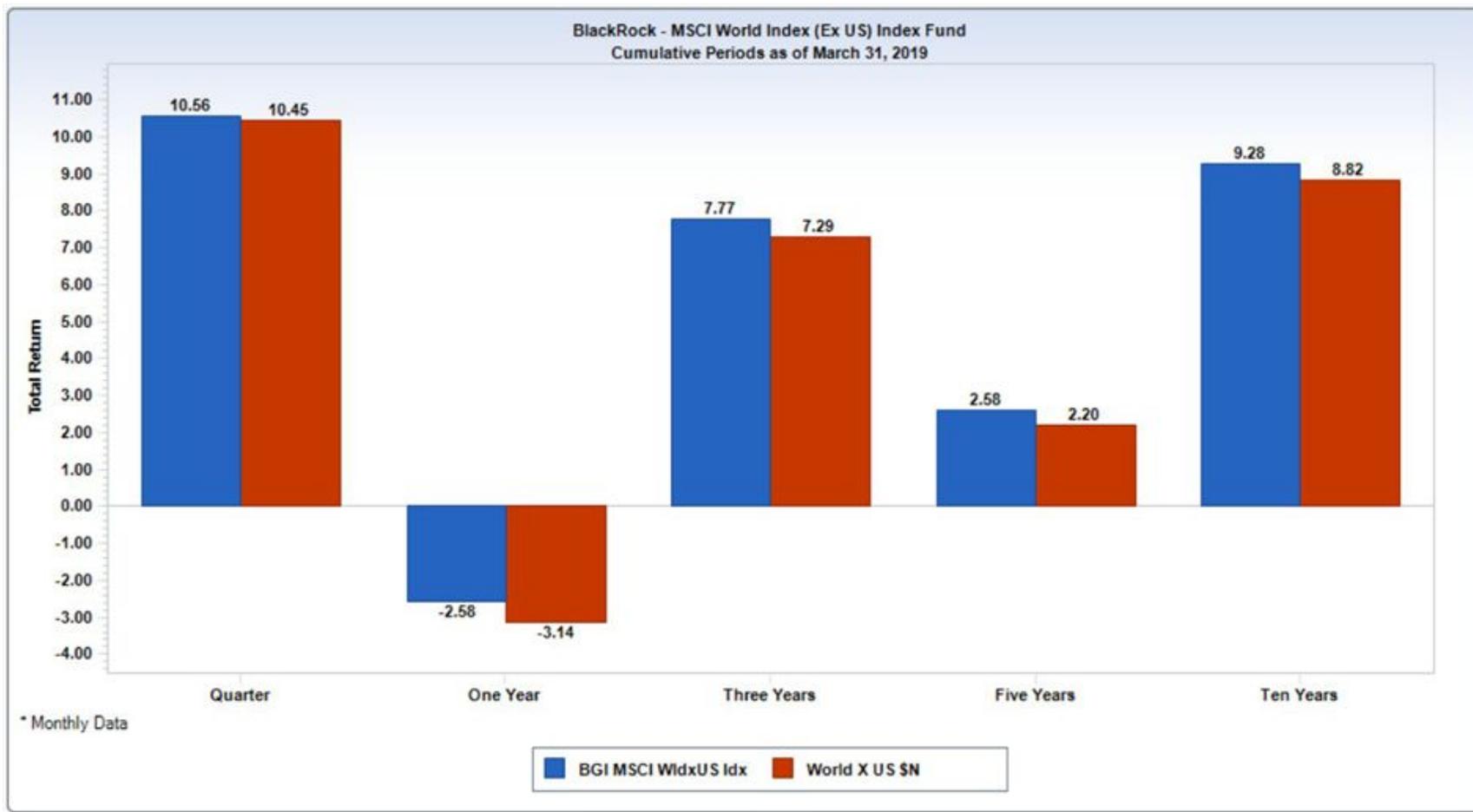
# Blackrock - ACWI ex US Index



Wilshire Consulting



# Blackrock - World Ex US Index



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# Global Emerging Markets (GEM) Discovery Strategy

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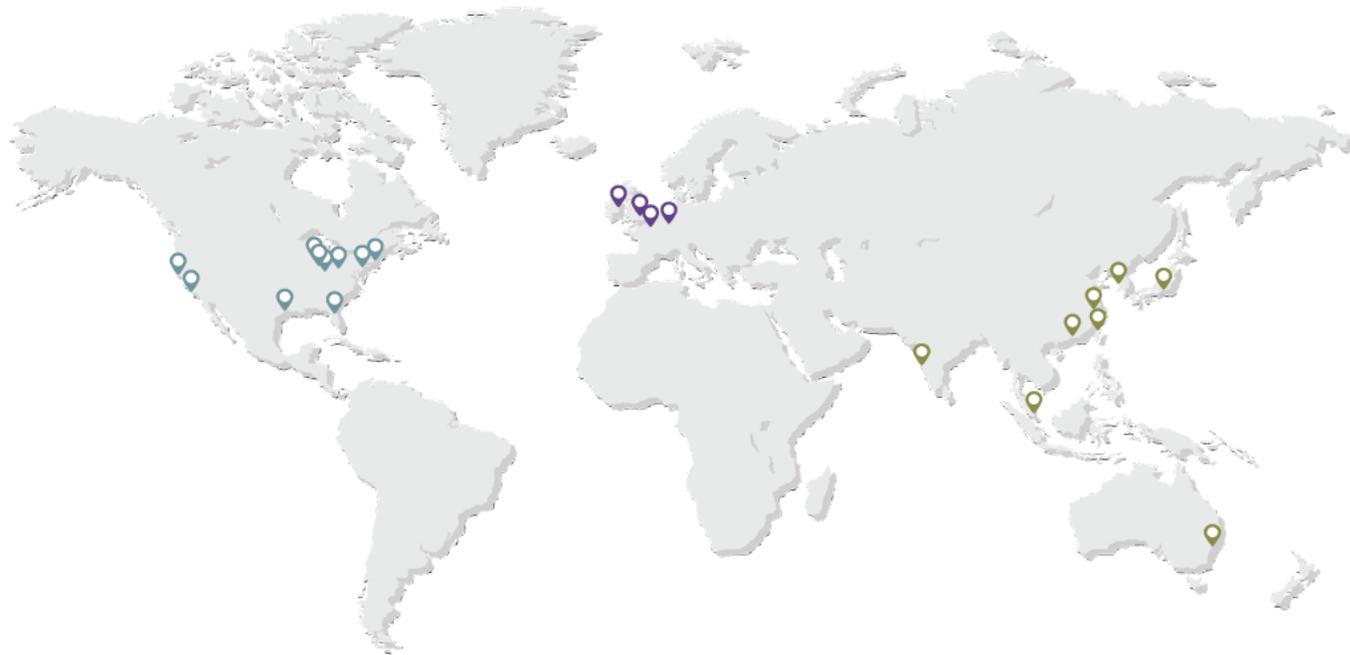
July 2019

**Thomas Leventhorpe**, Managing Director  
Investment Specialist

**Jeff Fox**, Managing Director  
Client Adviser

## J.P. Morgan: Unparalleled global reach

ASSET & WEALTH  
MANAGEMENT



<b>USD 1.7T</b> ASSETS UNDER MANAGEMENT	<b>60+</b> INVESTMENT ENGINES <sup>1</sup>	<b>17</b> INVESTMENT OFFICES WORLDWIDE	<b>1100+</b> INVESTMENT PROFESSIONALS	<b>USD 345M</b> ANNUAL RESEARCH BUDGET <sup>1</sup>	<b>103</b> YEARS MANAGING INSTITUTIONAL ASSETS
---	--	--	---	---	---

Source: J.P. Morgan Asset Management, as of March 31, 2019. <sup>1</sup>Data is updated annually, as of December 31, 2018.

<sup>1</sup> | FOR INSTITUTIONAL/WHOLESALE/PROFESSIONAL CLIENTS AND QUALIFIED INVESTORS ONLY – NOT FOR RETAIL USE OR DISTRIBUTION

**J.P.Morgan**  
Asset Management

## Executive summary

---

### GEM Discovery Strategy as of 30<sup>th</sup> June 2019

#### Expertise

##### Comprehensive research and local knowledge

- Nearly 100 dedicated portfolio managers and analysts across 8 countries
- 

#### Portfolio

##### Invest in high quality businesses that compound earnings sustainably over the long term

- Fundamental, bottom-up, research driven, high active share
  - In-depth fundamental analysis focuses on the economics, duration and governance of a business
- 

#### Results

##### Strong track record of over 20 years

- The strategy has outperformed the benchmark over 1, 3, 5 and 10 years and since inception
- Annualized excess returns of 4% (gross) over rolling time periods
- The combination of persistent SMID bias and quality focus has generated outperformance in both up and down markets: 107% upside capture / 85% downside capture over the 5 years to March 31, 2019

The manager seeks to achieve the stated objectives. There can be no guarantee the objectives will be met. Past performance is no guarantee of future results.

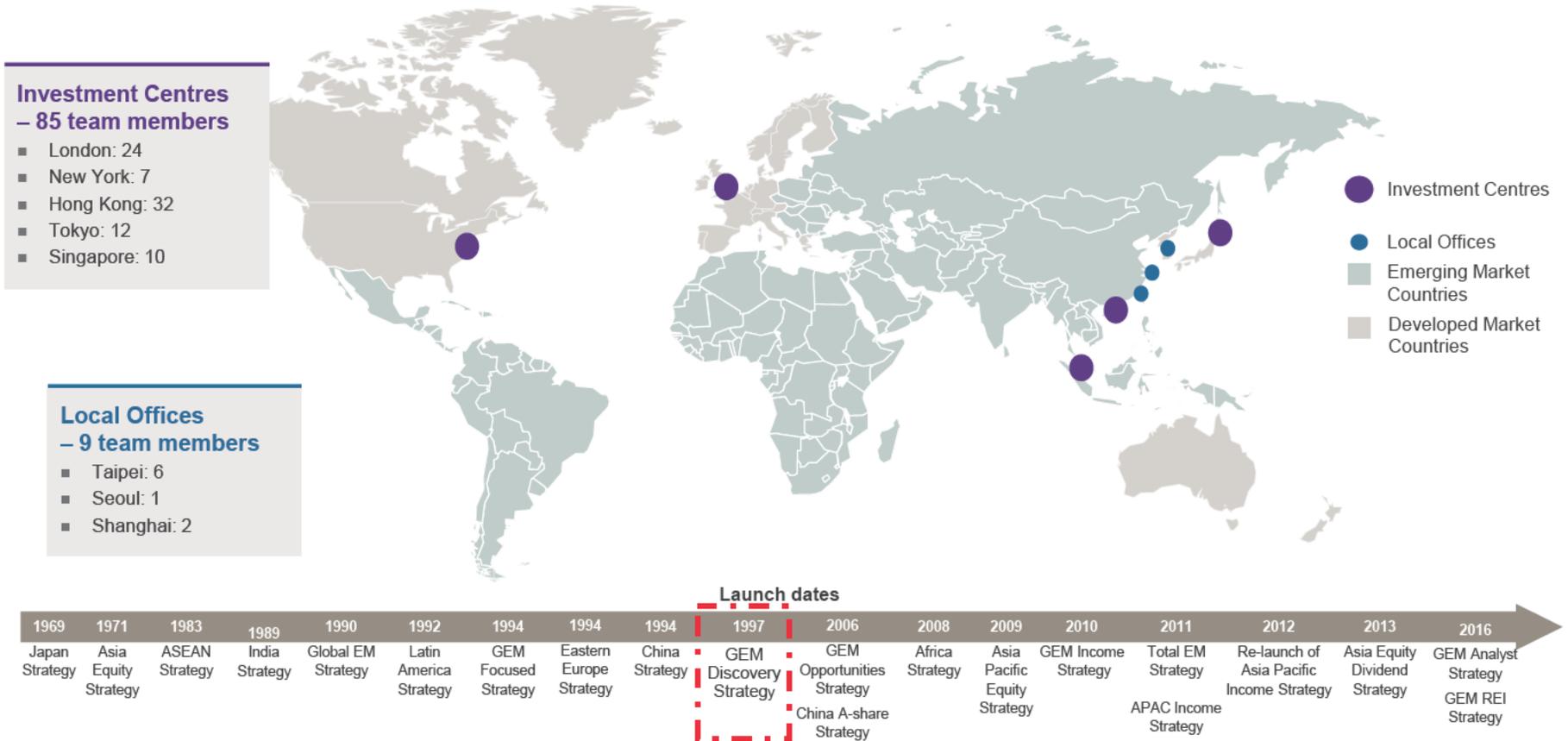
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# Expertise

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## Expertise, comprehensive coverage and long tenure

### J.P. Morgan Asset Management in Emerging Markets & Asia Pacific (EMAP)



Source: J.P. Morgan Asset Management. As of 30th June 2019

## Global Emerging Markets (GEM) Fundamental: Portfolio management team

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**Richard Titherington**  
Head of EMAP Equities  
Team  
Experience: 35/33

### GEM Fundamental Team



**Austin Forey**  
Experience: 31/31



**Leon Eidelman**  
Experience: 16/16



**Amit Mehta**  
Experience: 17/7



**John Citron**  
Experience: 9/9

Source: J.P. Morgan Asset Management. As of 30th June 2019  
Number of years experience Industry/Firm as of 31st December 2018

# Emerging Markets and Asia Pacific (EMAP) Equities research platform



**Mark Ferguson**  
Head of Sector  
Research  
Exp 19/19

## Financials



**Chris Birney**  
Exp: 18/9



**Li Tan**  
Exp: 8/8



**Giovanni Carriere**  
Exp: 21/5



**Ravi Tanna**  
Exp: 8/<1



**Connie Shen**  
Exp: 8/5

## Consumer



**Aline Gaspar**  
Exp: 15/15



**Catherine Moong**  
Exp: 18/13



**Piotr Drozd**  
Exp: 11/4



**Anuj Bansal**  
Exp.: 12/<1



**Eva Wang**  
Exp: 14/2



**Yunyun Hu**  
Exp: 10/1



**Lin He**  
Exp: 15/1

## Technology & Telecoms



**Edward Yen**  
Exp: 14/<1



**Penny Tu**  
Exp: 13/5



**Ansel Lin**  
Exp 6/<1



**Robert Yen**  
Exp: 16/3



**Paul Chan**  
Exp: 25/19



**Tucker Grinnan**  
Exp: 18/4



**Sagar Rastogi**  
Exp: 10/1

## Fundamental Product Analysts



**Koji Namiki**  
Fundamental  
Exp: 21/14



**Mark Perrin**  
Fundamental  
Exp: 14/5



**Weiyong Dong**  
Fundamental  
Exp: 13/4



**Rachel Rodrigues**  
LATAM  
Exp: 10/4



**Karan Sikka**  
India  
Exp: 15/14



**Seol Kim**  
Korea  
Exp: 13/2



**Chris Smith**  
Australia  
Exp: 10/2

## Macro & Quantitative Analysts



**Harold Yu**  
Exp.: 5/5



**Julian Wong**  
Exp.: 7/5



**Rui Song**  
Exp:1/<1



**Nandini Ramakrishnan**  
Strategy  
Exp:5/5

## Industrials



**Gokhan Ates**  
Exp: 15/8



**Simmy Qi**  
Exp: 8/8



**Mark Mao**  
Exp: 9/2



**Bonnie Chang**  
Exp: 19/4



**Willy Chen**  
Exp: 9/1



**Vivian Tao**  
Exp: 21/<1

## Natural Resources



**Veronika Lysogorskaya**  
Exp: 13/8



**Sandro Apostolico**  
Exp: 22/22



**Andrew Tan**  
Exp: 24/11

## Healthcare



**Denise Valentine**  
Exp: 23/3



**Vincent Yu**  
Exp: 11/6

28 in Asia

12 in London

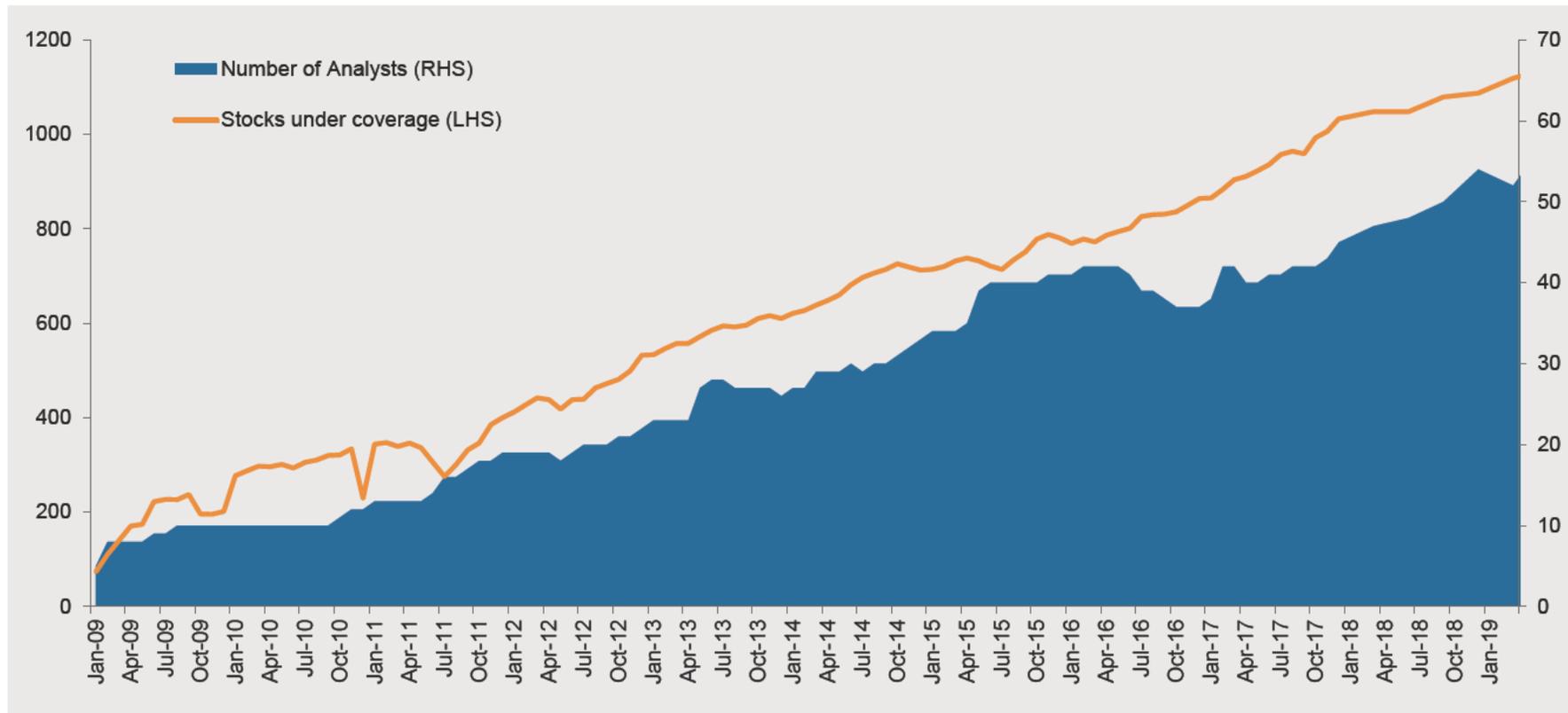
3 in New York

Source: J.P. Morgan Asset Management. As of 30th June 2019  
Number of years experience Industry/Firm as of 31st December 2018

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## Our fundamental research is a competitive advantage

1,138 stocks under coverage, of which close to 215 are A shares



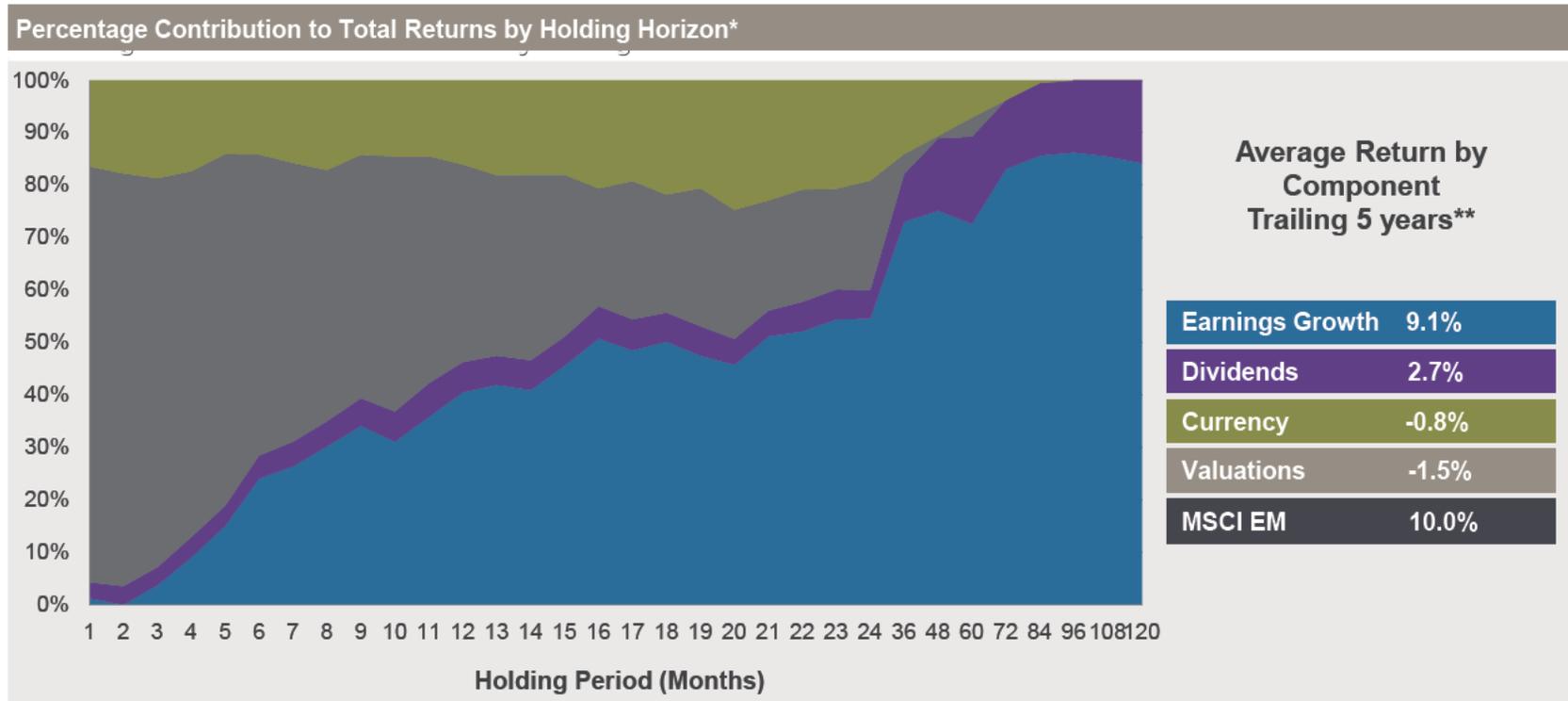
Source: J.P. Morgan Asset Management, data as of end June 2019.

Number of Analysts = Analysts + Portfolio Managers that cover stocks. Coverage is defined by stocks with a Five Year Expected Return and Strategic Classification.

# Portfolio

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## Earnings are what matter over the long-term



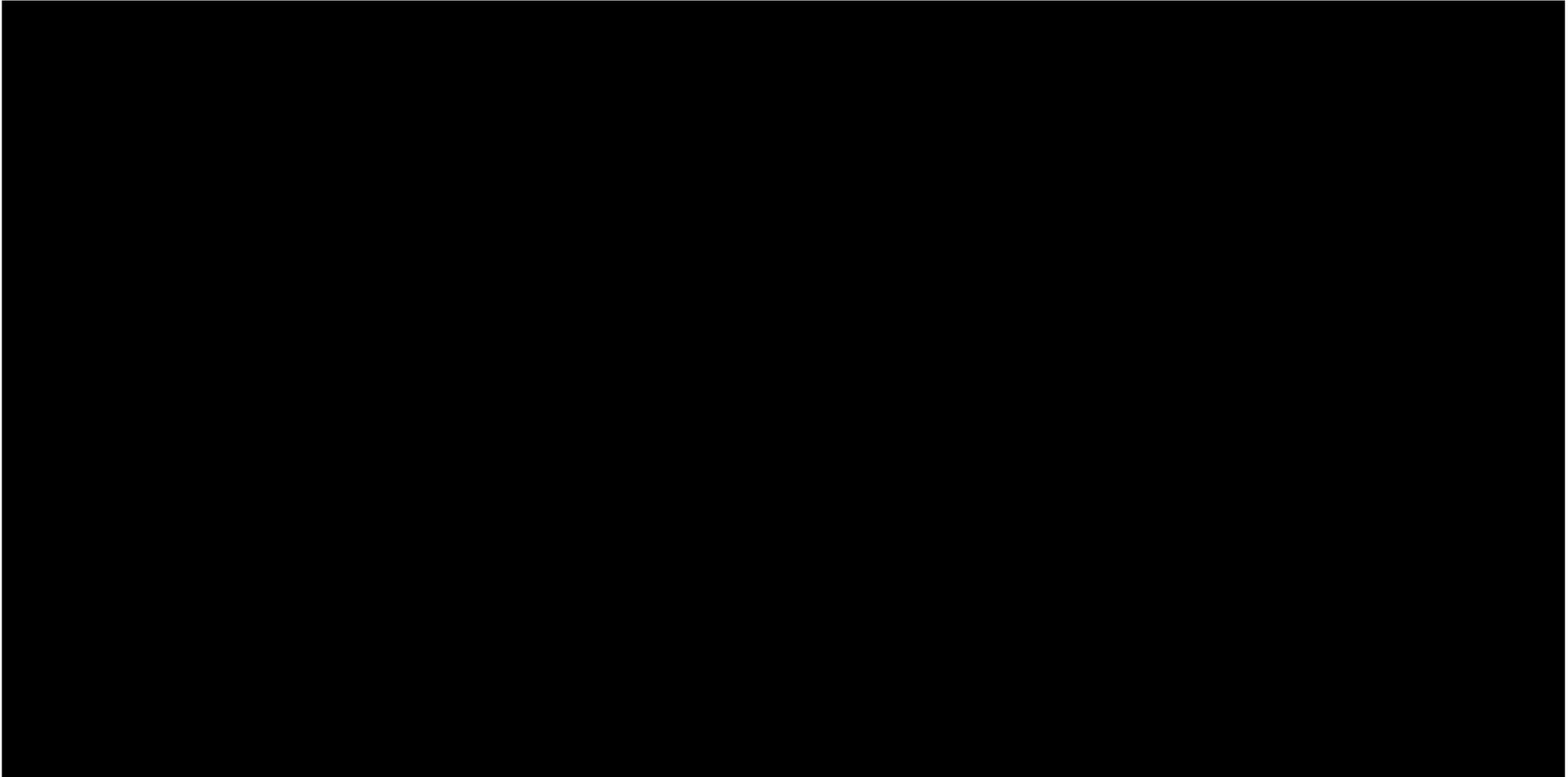
Source: J.P. Morgan Asset Management, MSCI.

\*Chart as of March 2017 based on data from MSCI for the period between 1994 and 2017. Past performance is not necessarily a reliable indicator for current and future performance.

\*\*Average return by component trailing five years, average of quarterly MSCI data from March 1998 to March 2019.

## Research Process summarised

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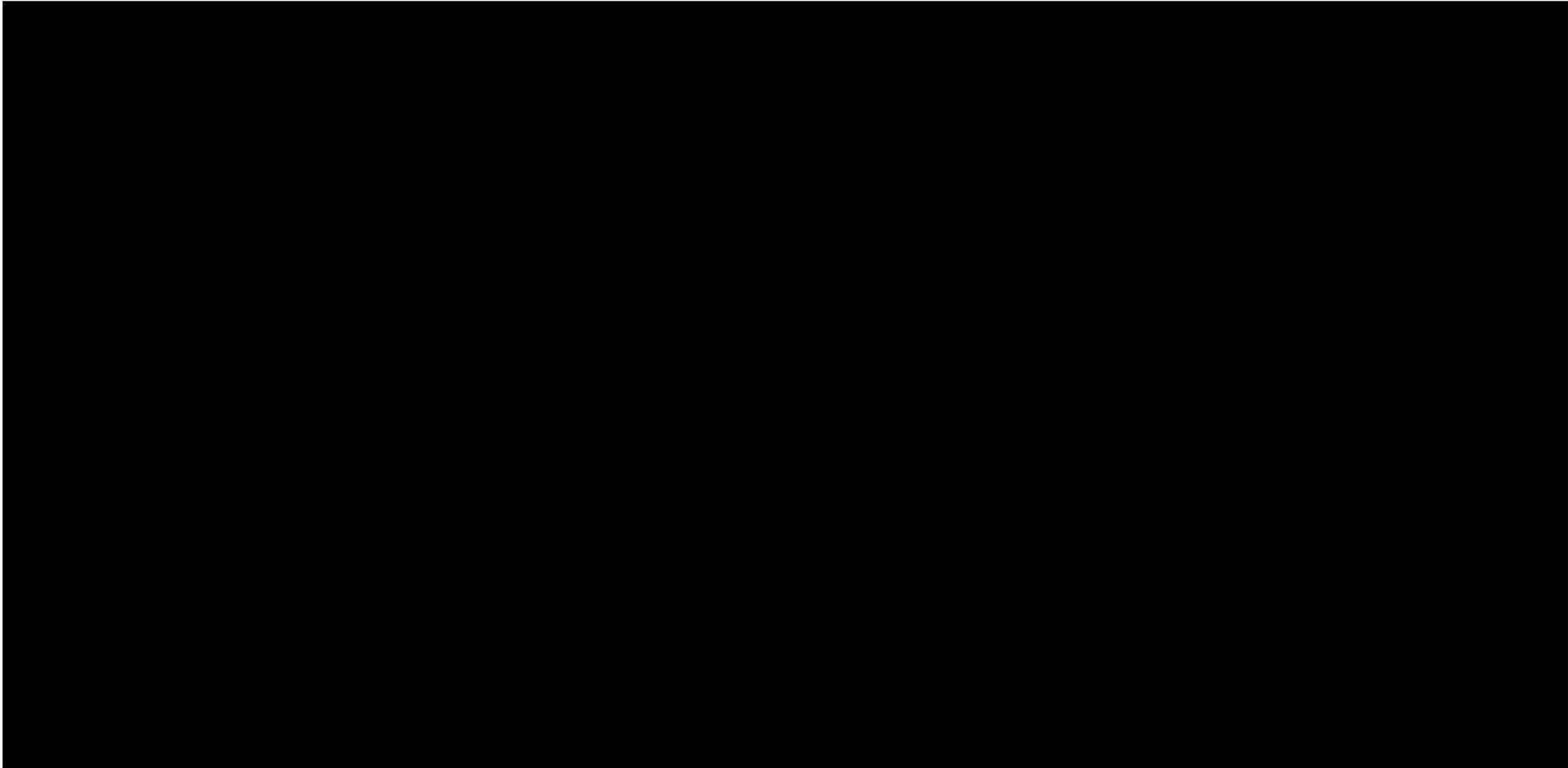


Source: J.P. Morgan Asset Management. Data as of 31<sup>st</sup> March 2019.

## Where it all comes together

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Portfolio construction



For illustrative purposes only



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## Country and sector positions

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Source: J.P. Morgan Asset Management. The Fund is an actively managed portfolio. Holdings, sector weights, allocations and leverage, as applicable, are subject to change at the discretion of the Investment Manager without notice.

## Portfolio characteristics

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Global Emerging Markets Discovery Strategy as of 30 June 2019

Benchmark	MSCI Emerging Markets IMI Index
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Source: J.P. Morgan Asset Management. The portfolio is actively managed. Holdings, sector weights, allocations and leverage, as applicable, are subject to change at the discretion of the Investment Manager without notice. \*Portfolio yield is the aggregate weighted sum of the estimated yields of the stocks in which the portfolio invested. It is calculated as (12-month forward DPS / Current price)\*100. It is not based on the portfolio's dividend distributions. \*\*Net debt to equity ratio excludes financials.



## Results

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## Performance

### Global Emerging Markets Discovery Strategy as of 30<sup>th</sup> June 2019

Supplemental to annual performance report

#### Market value (as of June 2019)

Global Emerging Markets Discovery Strategy USD 2,454m

#### Annualized performance (%) – Gross of fees

Supplemental to Annual Report	Three months	YTD	One Year	Three years	Five years	Seven Years	Ten Years	Since Inception
Global Emerging Markets Discovery Strategy Composite	4.53	19.68	7.56	15.31	8.02	9.18	12.31	11.75
MSCI Emerging Markets IMI	0.43	10.14	0.47	10.01	2.25	4.10	5.83	6.21
<b>Excess Returns</b>	<b>4.09</b>	<b>8.66</b>	<b>7.06</b>	<b>4.82</b>	<b>5.64</b>	<b>4.88</b>	<b>6.13</b>	<b>5.22</b>

#### Calendar year performance (%) – Gross of fees

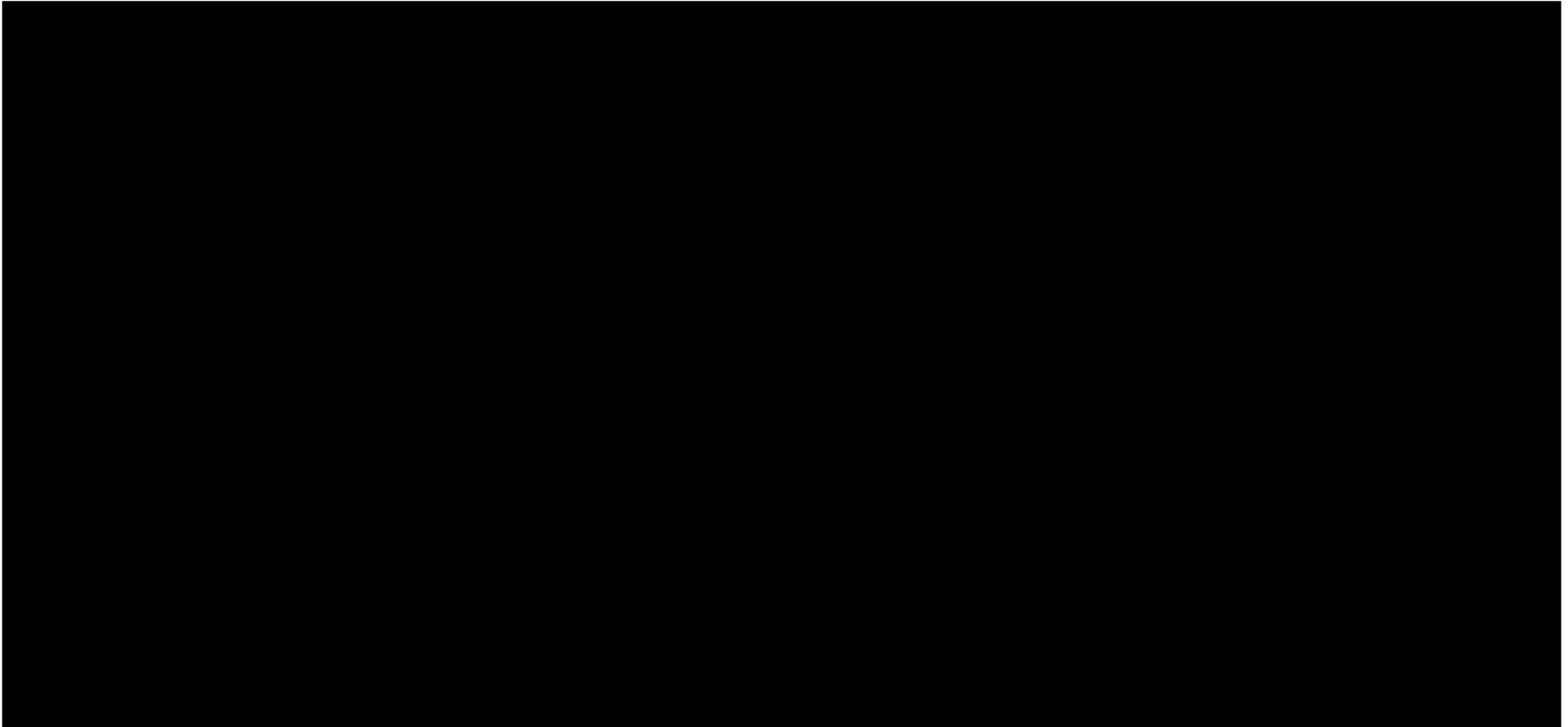
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Global Emerging Markets Discovery Composite	-27.41	83.71	-24.65	-0.90	-7.88	68.07	37.04	29.65	33.18	41.46	-57.42	129.83	34.99	-19.33	21.06	3.27	1.72	-8.53	13.96	46.39	-14.82
MSCI EM IMI	-29.67	62.63	-35.31	-2.02	-6.49	53.97	26.62	33.47	31.71	39.83	-53.78	82.36	19.90	-19.49	18.68	-2.20	-1.79	-13.86	9.90	36.83	-15.05
MSCI EM Standard	-25.34	66.41	-30.61	-2.61	-6.17	55.81	25.55	33.99	32.17	39.39	-53.33	78.51	18.88	-18.42	18.22	-2.60	-2.19	-14.92	11.19	37.28	-14.58
<b>Excess Returns vs. IMI</b>	<b>3.21</b>	<b>12.96</b>	<b>16.48</b>	<b>1.14</b>	<b>-1.49</b>	<b>9.16</b>	<b>8.23</b>	<b>-2.86</b>	<b>1.12</b>	<b>1.17</b>	<b>-7.88</b>	<b>26.03</b>	<b>12.59</b>	<b>0.20</b>	<b>2.01</b>	<b>5.59</b>	<b>3.57</b>	<b>6.19</b>	<b>3.70</b>	<b>6.99</b>	<b>0.27</b>
<b>Excess Returns vs. Standard</b>	<b>-2.77</b>	<b>10.40</b>	<b>8.59</b>	<b>1.76</b>	<b>-1.82</b>	<b>7.87</b>	<b>9.15</b>	<b>-3.24</b>	<b>0.76</b>	<b>1.49</b>	<b>-8.76</b>	<b>28.75</b>	<b>13.55</b>	<b>-1.12</b>	<b>2.40</b>	<b>6.03</b>	<b>4.00</b>	<b>7.51</b>	<b>2.50</b>	<b>6.63</b>	<b>-0.28</b>

Source: J.P. Morgan Asset Management. Returns are gross of fees in USD. Excess returns are calculated on a geometric basis. This information is supplemental to information provided previously. Past performance is not a guarantee of comparable future results. Total return assumes the reinvestment of income. Performance results are gross of investment management fees. The deduction of an advisory fee reduces an investor's return. Actual account performance will vary depending on individual portfolio security selection and the applicable fee schedule. Fees are described in Part II of the Advisor's ADV which is available upon request. Please see back page for additional disclosure

## Performance attribution

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Global Emerging Markets Discovery Strategy YTD as of 30 June 2019

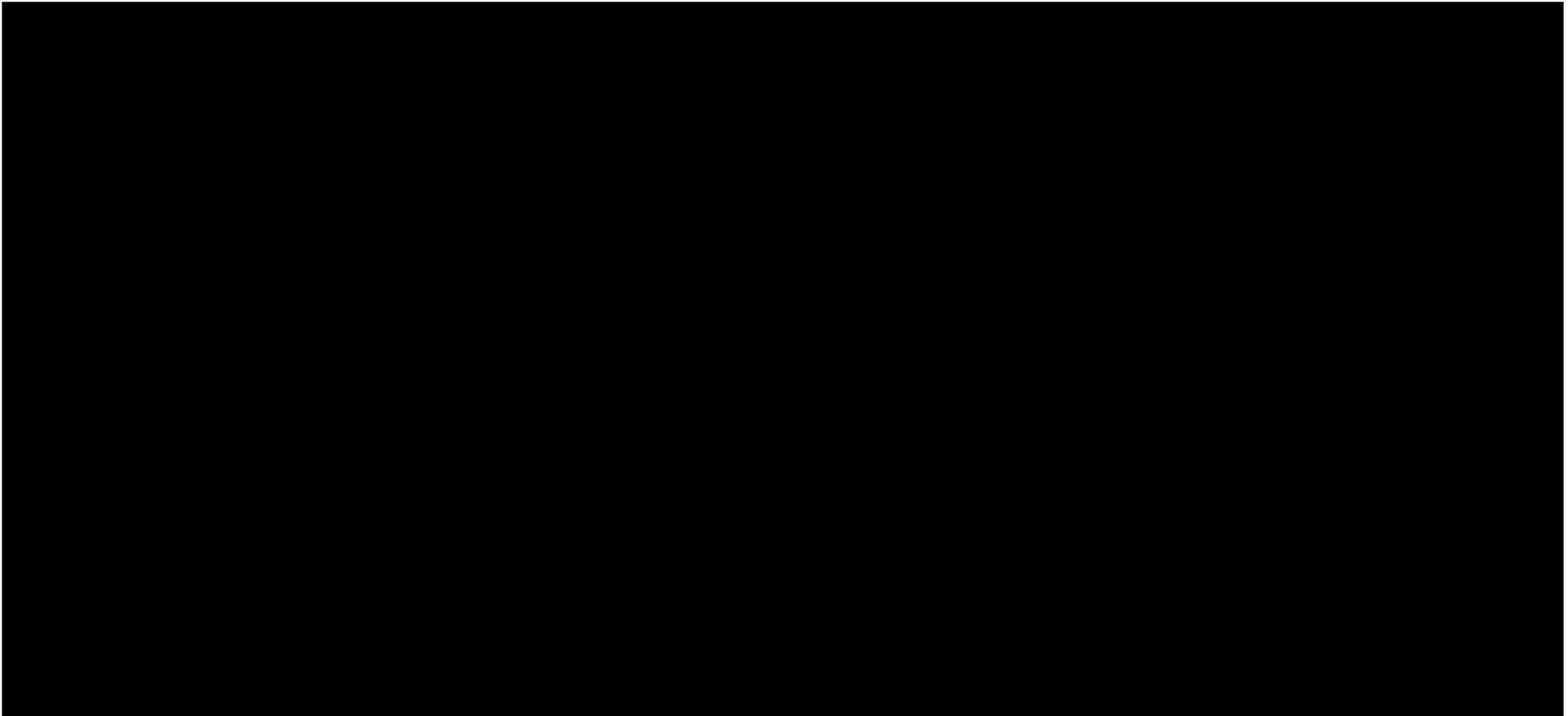


Source: J.P. Morgan Asset Management, MSCI Emerging Markets IMI (%). Factset, gross of fees in USD to 30<sup>th</sup> June 2019. Data for Total Attribution shown (stock selection plus country allocation). Attribution may not match official returns due to differences in systems rounding. Past performance is not an indication of future performance. The above portfolio characteristics are shown for illustrative purposes only and are subject to change without notice. The companies/securities above are shown for illustrative purposes only. Their inclusion should not be interpreted as a recommendation to buy or sell. J.P. Morgan Asset Management may or may not hold positions on behalf of its clients in any or all of the aforementioned securities.

## Performance attribution

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Global Emerging Markets Discovery Strategy YTD as of 30 June 2019



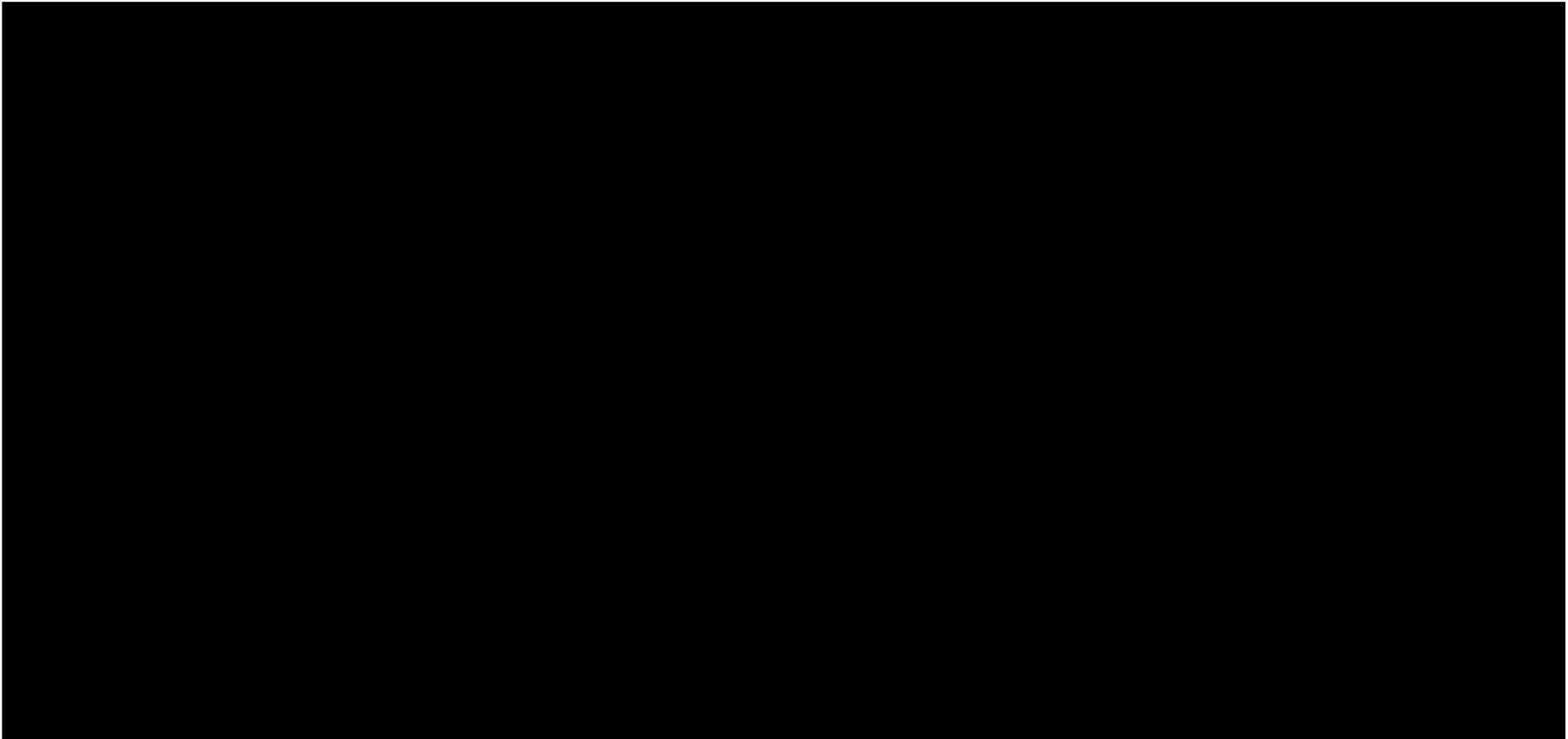
Source: J.P. Morgan Asset Management, MSCI Emerging Markets IMI (%). Factset, gross of fees in USD to 30<sup>th</sup> June 2019. Data for Total Attribution shown (stock selection plus country allocation). Attribution may not match official returns due to differences in systems rounding. Past performance is not an indication of future performance. The above portfolio characteristics are shown for illustrative purposes only and are subject to change without notice. The companies/securities above are shown for illustrative purposes only. Their inclusion should not be interpreted as a recommendation to buy or sell. J.P. Morgan Asset Management may or may not hold positions on behalf of its clients in any or all of the aforementioned securities.



## Performance attribution

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Global Emerging Markets Discovery Strategy YTD as of 30 June 2019



Source: J.P. Morgan Asset Management, MSCI Emerging Markets IMI (%). Factset, gross of fees in USD to 30<sup>th</sup> June 2019. Attribution may not match official returns due to differences in systems rounding. The companies/securities above are shown for illustrative purposes only. Their inclusion should not be interpreted as a recommendation to buy or sell. J.P. Morgan Asset Management may or may not hold positions on behalf of its clients in any or all of the aforementioned securities.\*Not in benchmark.



## Environments

### Global Emerging Markets Discovery Strategy as of 30<sup>th</sup> June 2019

#### Environments in which the portfolio tends to perform well

- Benign macro economic environments
- Markets that lack a strong directional theme
- Company specific factors are the main drivers of returns (and there is broad participation)
- Consumer oriented sectors outperform more cyclical sectors, specifically energy and materials
- Small and mid cap stocks outperform

#### Example: 2015

- The market was generally characterized by a benign macro economic environment, despite spikes in volatility in China and South Africa during the year
- The Strategy outperformed, driven by stock selection as macro headwinds subsided and company specific factors began to drive returns
- IT outsourcers, attractive due to their high standards of corporate governance, strong economics and cash flow generation, were leading contributors across a range of markets

#### Environments in which the portfolio tends to struggle

- Low quality, deep value stocks outperform
- Large cap stocks outperform and market leadership is very narrow
- Positive momentum is a dominant factor
- Sharp macro and FX driven corrections
- Standalone commodity rallies
- Liquidity driven sell-offs

#### Example: 2008

- The asset class fell by over 50% as fear of a global financial meltdown led to a massive sell-off of risk in global markets
- The Strategy underperformed as small and mid-cap sold off more than larger capitalization stocks which were perceived as being lower risk

The opinions and views expressed here are those held by the author, which are subject to change and are not to be taken as or construed as investment advice.

## Executive summary

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### GEM Discovery Strategy as of 30<sup>th</sup> June 2019

#### Expertise

##### Comprehensive research and local knowledge

- Nearly 100 dedicated portfolio managers and analysts across 8 countries
- 

#### Portfolio

##### Invest in high quality businesses that compound earnings sustainably over the long term

- Fundamental, bottom-up, research driven, high active share
  - In-depth fundamental analysis focuses on the economics, duration and governance of a business
- 

#### Results

##### Strong track record of over 20 years

- The strategy has outperformed the benchmark over 1, 3, 5 and 10 years and since inception
- Annualized excess returns of 4% (gross) over rolling time periods
- The combination of persistent SMID bias and quality focus has generated outperformance in both up and down markets: 107% upside capture / 85% downside capture over the 5 years to March 31, 2019

The manager seeks to achieve the stated objectives. There can be no guarantee the objectives will be met. Past performance is no guarantee of future results.

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# Appendix

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## Risk Profile

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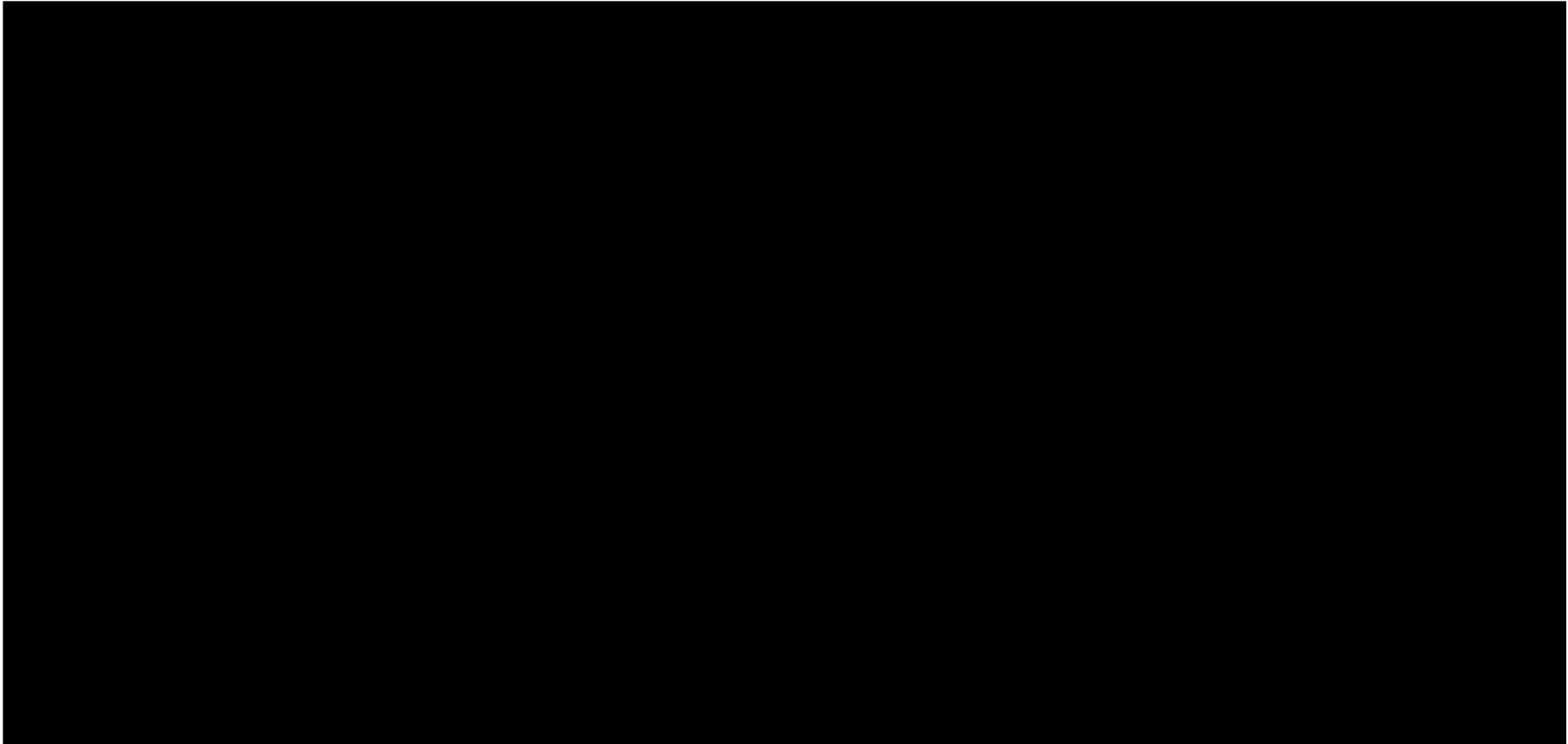
Learning from past mistakes



ESG considerations are one aspect of our decision making process. We continue to only make investments that we believe will be return-enhancing and accretive to our clients' portfolios.

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## Sustainable Investing – Emerging Market & Asia Pacific Equities



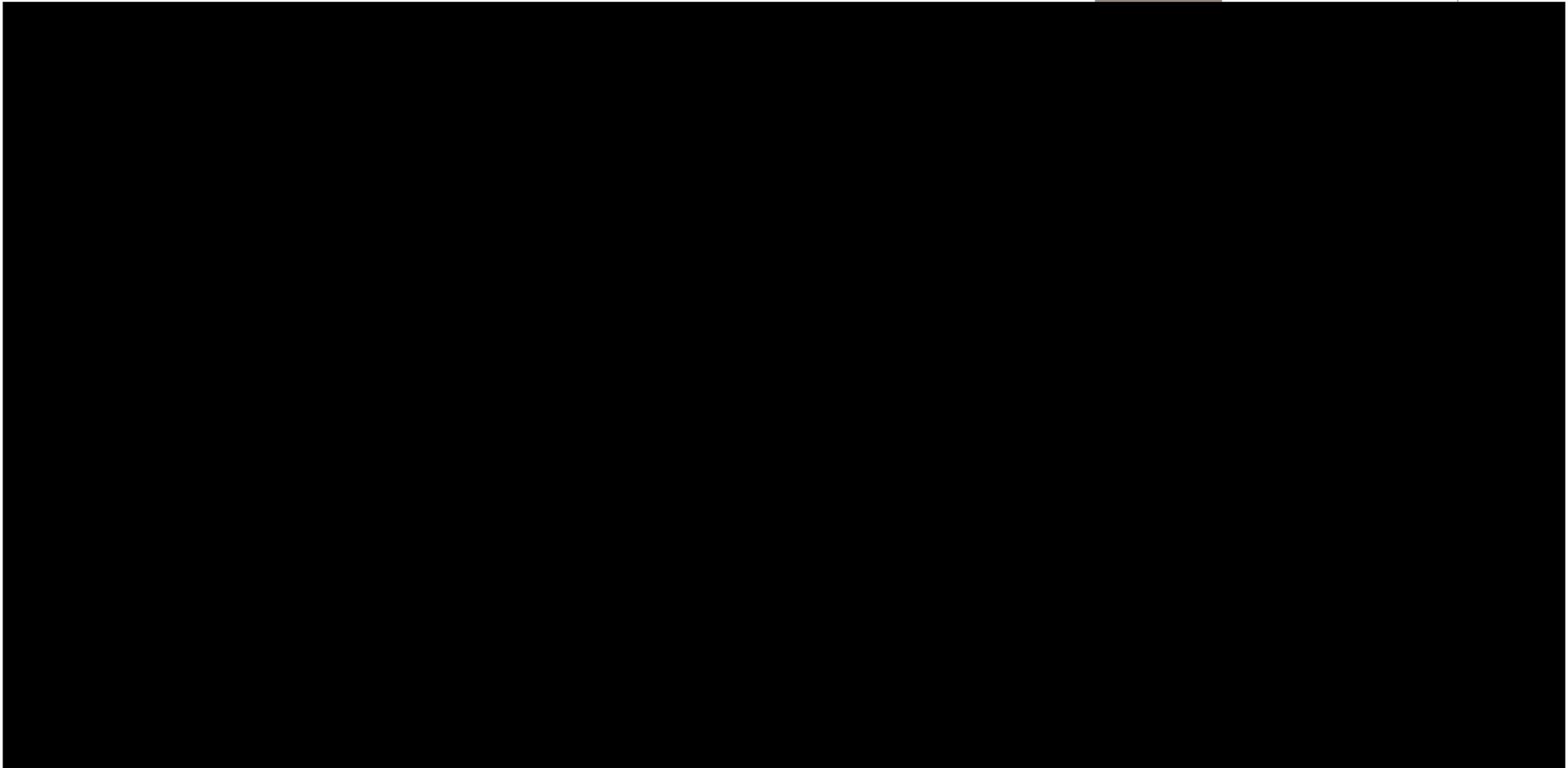
Source: J.P. Morgan Asset Management. March 2019. ESG = Environmental, Social, Governance

\*per annum, relative to team's coverage \*\*Quintiles are based on total number of stocks, not market capitalization. The companies above are shown for illustrative purposes only. Their inclusion should not be interpreted as a recommendation to buy or sell. ROE = Return on Equity

## Portfolio positions

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Global Emerging Markets Discovery Strategy as of 31<sup>st</sup> May 2019



Source: J.P. Morgan Asset Management

Benchmark: MSCI EM IMI. Market Cap as of the end of May 2019 in USD millions. The inclusion of the securities mentioned above is not to be interpreted as recommendations to buy or sell. The information above is taken from a representative account. Actual account information may differ.

## J.P. Morgan Equities: Deeply resourced and research led

### ACTIVELY SHARING EXPERTISE

#### Local equity research integrated globally

- Collaboration among 370+ equity investment professionals in 9 locations
- One of the **deepest and most experienced** equity managers in the world
- **USD 150m** annual research budget leads to unique insights

### EMPOWERING BETTER DECISIONS

#### Insights and guidance to help our clients invest with conviction

- **Proprietary portfolio insights**, reports and analytics
- **Timely macro and market views**, including our quarterly global equity views
- **Access to senior managers** through a range of client events

### BUILDING THE RIGHT PORTFOLIO

#### Solutions designed to address client needs

- Strong commitment to **active management**
- **Comprehensive range of strategies** across styles and geographies
- **Disciplined approach to risk management**

### TAPPING INTO PROVEN SUCCESS

#### A history of innovation and demonstrated results

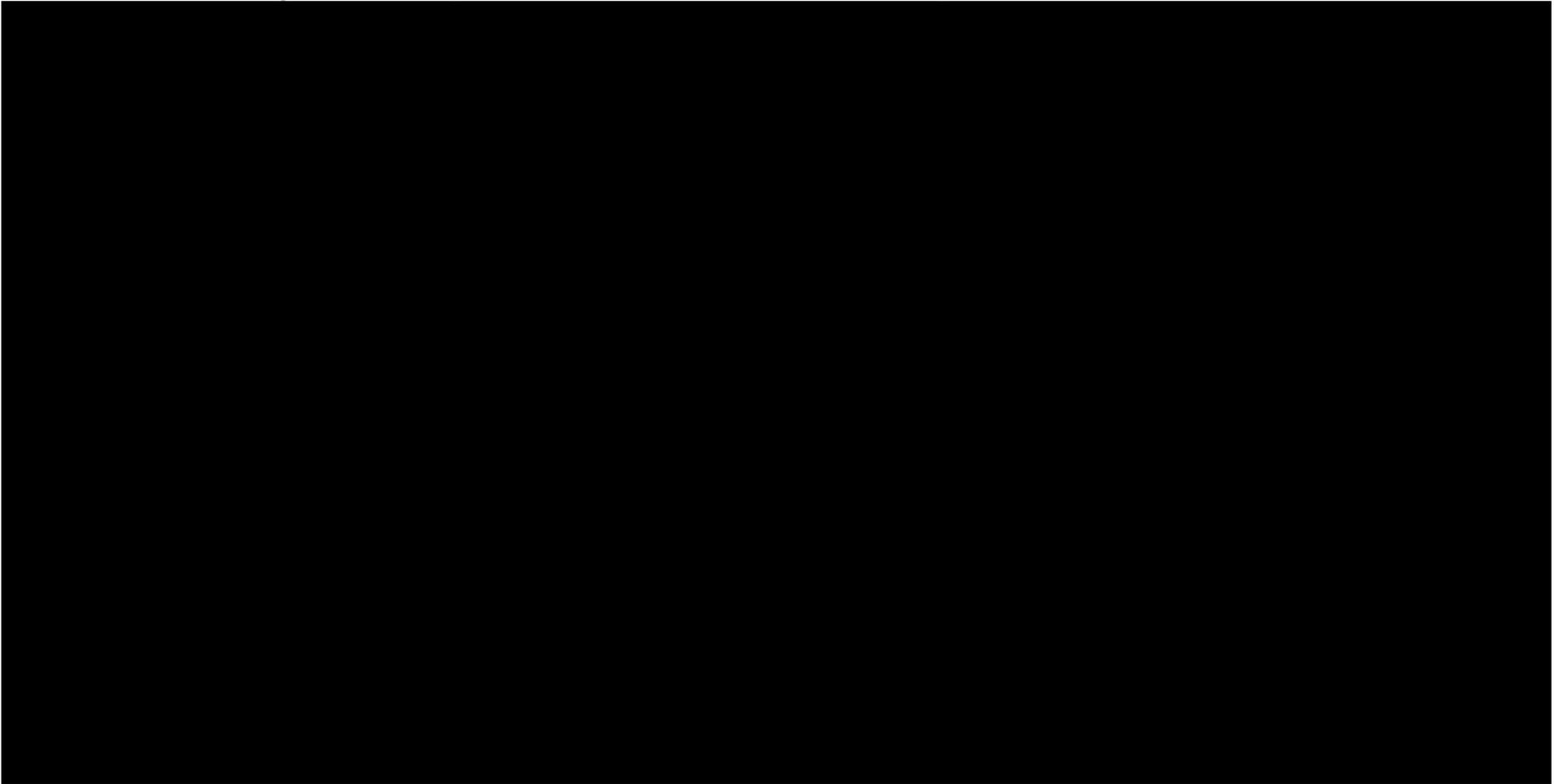
- Led by an **investment performance culture**
- **Serving 57%** of the world's largest pension plans, sovereign wealth funds and central banks
- **Early mover** in research-enhanced index and short-enabled strategies

Source: J.P. Morgan Asset Management. As of 31<sup>st</sup> March 2019. Includes portfolio managers, research analysts, traders and investment specialists with VP title and above

## Active management demands active risk management

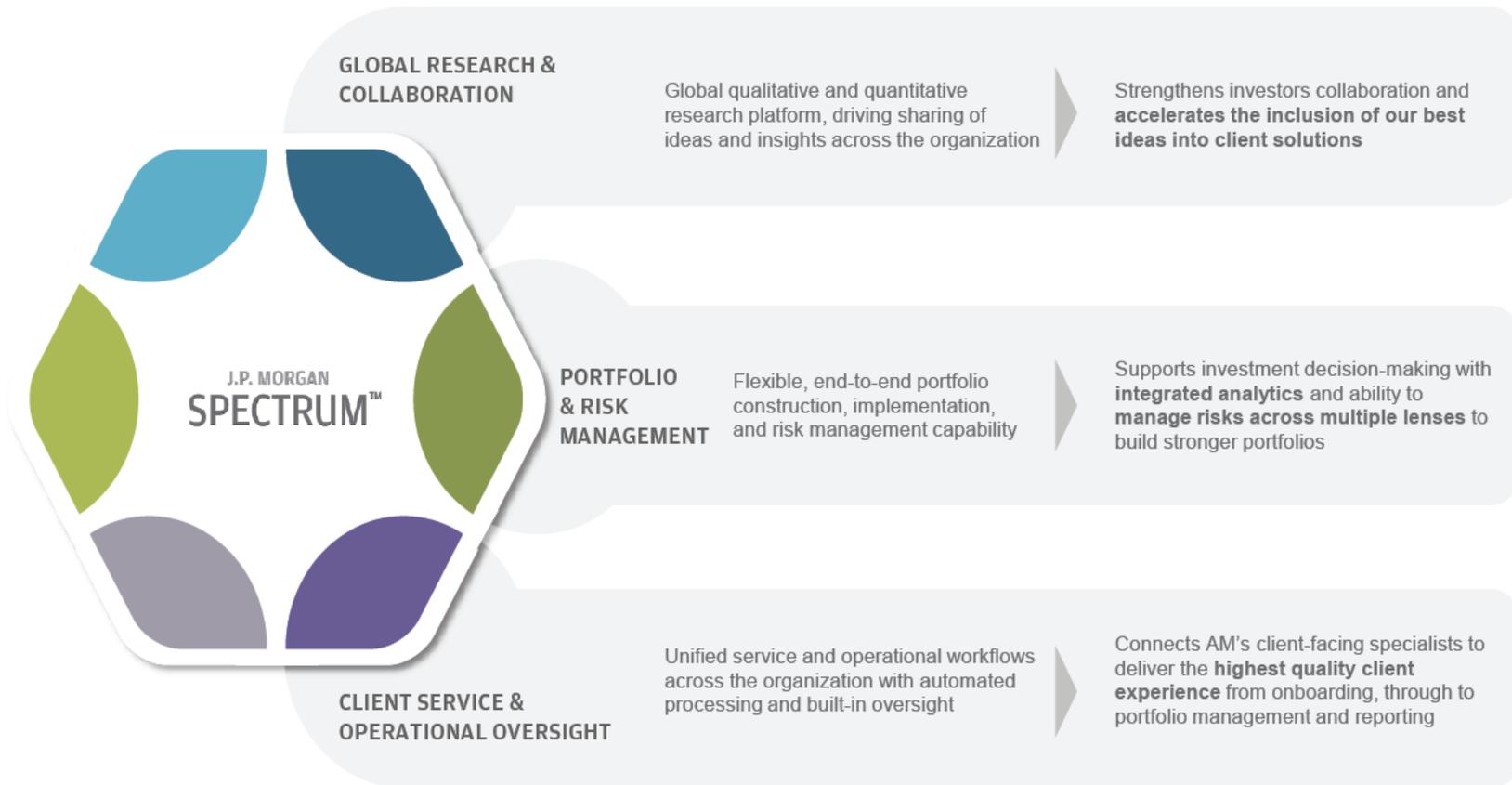
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Our risk management discipline is essential to our investment process



## J.P. Morgan Spectrum™ end-to-end investment management and client service

One platform to manage solutions and services for clients across J.P. Morgan Asset Management



## Biographies

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### Leon Eidelman

Leon Eidelman is a portfolio manager within the Emerging Markets and Asia Pacific (EMAP) Equities team based in New York. An employee since 2002, Leon is a member of the group of Global Emerging Market portfolio managers responsible for the fundamental, bottom-up portfolios, including the Global Emerging Markets Discovery and GEM Focused strategies. He is lead manager of the Global Emerging Markets Discovery strategy and is a portfolio manager on the GEM Focused Strategy. Leon holds a B.A. in economics with a concentration in finance from Cornell University and is a CFA charter holder.



### Austin Forey

Austin Forey is a portfolio manager responsible for Global Emerging Markets. An employee since 1988, Austin is a portfolio manager responsible for Global Emerging Markets portfolios, a role he has fulfilled since 1994. Prior to this he worked in the U.K. market, where he was deputy head of UK research. Before this, Austin worked as research analyst covering engineering, and subsequently all financial sectors, including property; other responsibilities included co-management of a mid-cap investment trust, and two specialist unit trusts. Austin obtained a B.A. in modern languages from Cambridge University, and earned a Ph.D. in modern languages from Cambridge University.



### Amit Mehta

Amit Mehta is a portfolio manager responsible for Global Emerging Markets portfolios based in London. An employee since 2011, Amit previously worked at Prusik Investment Management (2009-2011) and Atlantis Investment Management (2007-2009) where he was an Asian equities Analyst and Portfolio Manager. Prior to that he was a Global Emerging Markets Analyst at Aviva Investors (2004-2007) and an Investment Consultant at Mercer Investment Consulting (2000-2004). Amit obtained a Bsc (Hons) in Mathematics from Kings College London. He is a holder of the CFA designation.

## GIPS performance page

### Composite Performance Results

Composite	Global Emerging Markets Discovery
Benchmark	MSCI EM IMI USD Net
Base Currency	US Dollar
Gross Returns as of	30-Jun-2019
Firm	JPM EMEA

Year	Composite Return	Benchmark Return	Composite 3-Yr Ann St Dev	Benchmark 3-Yr Ann St Dev	Number of Portfolios (*throughout period)	Dispersion	Market Value at end of Period	Percentage of Firm Assets	Total Firm Assets
2019 (Jun)	19.68%	10.14%	14.11%	13.62%	5 (5)	N/A	2,442,547,949		
2018	-14.77%	-15.04%	14.42%	14.63%	5 (5)	N/A	1,608,442,989	0.40%	397,864,000,000
2017	46.39%	36.83%	13.98%	15.33%	5 (3)	N/A	1,475,864,701	0.37%	397,864,000,000
2016	13.96%	9.90%	14.92%	15.95%	<5	N/A	789,218,887	0.24%	323,024,000,000
2015	-8.49%	-13.86%	13.59%	14.04%	<5	N/A	608,622,272	0.18%	337,498,000,000
2014	1.73%	-1.79%	14.38%	14.99%	<5	N/A	702,244,560	0.20%	346,370,000,000
2013	3.28%	-2.20%	17.68%	19.30%	<5	N/A	500,107,116	0.15%	339,656,000,000
2012	21.06%	18.68%	19.98%	21.79%	<5	N/A	1,036,275,636	0.36%	285,186,000,000
2011	-19.33%	-19.49%	28.38%	26.41%	<5	N/A	799,461,935	0.29%	279,893,000,000
2010	34.99%	19.90%	38.29%	33.48%	<5	N/A	652,590,024	0.22%	302,549,000,000

## GIPS Disclosures

### Composite Disclosures

Composite: Global Emerging Markets Discovery

As of: 30-Jun-2019

#### The Firm

For the purpose of GIPS® compliance, the Firm is defined as the J.P. Morgan London, J.P. Morgan Japan, J.P. Morgan Hong Kong, J.P. Morgan Singapore and J.P. Morgan Taiwan investment processes of J.P. Morgan Asset Management. Robert Fleming Holdings was acquired by the Chase Manhattan Corporation on 1st August 2000. The Chase Manhattan Corporation and JP Morgan and Co Incorporated merged with effect from 1st January 2001. The firm name was changed from JPMorgan Fleming Asset Management to J.P. Morgan Asset Management with effect from July 2005. J.P. Morgan Taiwan investment process was added to the firm definition with effective from January 2019. A complete list and description of all the firm's composites is available on request.

#### Verification

J.P. Morgan Asset Management claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. J.P. Morgan Asset Management has been independently verified for the periods 1st January 1996 to 31st December 2017. The verification reports are 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. Verification has not included the J.P. Morgan Taiwan investment process.

#### Definition of Composite

This composite consists of all equity portfolios invested with a global emerging markets discovery mandate, according to the following rules. The portfolios are managed by the Emerging Markets Equity Team; they can either be pooled funds or segregated accounts; they may invest in all market capitalization ranges but have a bias towards mid and small capitalization names; they follow a dynamic strategy. The composite is constructed from discretionary portfolios only. It does not contain any returns that have been carved out of other multi asset class portfolios. The benchmark of the composite is the MSCI Emerging Markets IMI (Net) index. The composite benchmark is calculated net of withholding tax from a Luxembourg holding company's perspective. The MSCI Investable Market Indices (IMI) cover all investable large, mid and small cap securities across the Developed, Emerging and Frontier Markets, targeting approximately 99% of each market's free-float adjusted market capitalization. No portfolios in this composite are leveraged through the use of derivatives or other means. Portfolios may be permitted to use forward contracts for the purposes of hedging only. Additionally some portfolios are permitted to use security and currency futures and options for positioning, according to the guidelines. The writing of uncovered options for any purpose is not permitted. The composite was constructed during December 2001. The composite inception date is 30 November 1997.

#### Valuation and Calculation

The returns shown for this composite are the asset-weighted averages of the performance of all of the individual portfolios in the composite using beginning of period weightings. The performance results are time-weighted rates of return with the reinvestment of income, that are net of commissions, transaction costs and non-reclaimable withholding taxes, where applicable. Gross returns do not reflect the deduction of management fees or any other expenses that may be incurred in the management of the account. Net returns are net of model management fees in effect for the respective time period. Model net returns are calculated by subtracting 1/12th of the fee listed in the fee disclosure section from the gross composite return on a monthly basis. No other fees in addition to the investment management fee and trading expenses have been deducted in the calculation of these net returns. No performance based fees have been deducted. Actual management fees charged may vary by account due to various conditions described in Part IIA of Form ADV.

The returns for indices do not include any transaction costs, management fees or other costs.

Additional information regarding policies for valuing portfolios, calculating performance and preparing compliant presentations are available upon request.

Internal dispersion measures the spread of annual returns of individual portfolios within a composite. It is calculated using the asset-weighted standard deviation of the gross returns of portfolios that were included in the composite for the full year. Internal dispersion is not shown for calendar years with five or fewer portfolios in the composite for the full year.

The three year annualised standard deviation measures the variability of the composite and benchmark returns over the preceding 36 month period. Standard deviation measures are not shown where there are less than 36 monthly observations available.

All portfolios in this composite have been valued at least monthly to June 2005 and daily thereafter (excluding Hong Kong accounts which continue to be valued monthly), on a trade date basis using accrual accounting.

Past performance is no guarantee of future results. As with any investment vehicle, there is always the potential for gains as well as the possibility of losses.

Until the Total Firm Assets are finalised, the previous year's Total Firm Assets will be carried forward as an estimate.

#### Fee

JPMorgan Asset Management's (JPMAM) typical schedule of management fees payable in USD for Global Emerging Markets Discovery clients is 0.80% per annum.

## J.P. Morgan Asset Management

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**RISKS ASSOCIATED WITH INVESTING:** International investing involves a greater degree of risk and increased volatility. Changes in currency exchange rates and differences in accounting and taxation policies outside the U.S. can raise or lower returns. Also, some overseas markets may not be as politically and economically stable as the United States and other nations. The Fund's investments in emerging markets could lead to more volatility in the value of the Fund. As mentioned above, the normal risks of investing in foreign countries are heightened when investing in emerging markets. In addition, the small size of securities markets and the low trading volume may lead to a lack of liquidity, which leads to increased volatility. Also, emerging markets may not provide adequate legal protection for private or foreign investment or private property.

The Target Return has been established by J.P. Morgan Investment Management Inc. "J.P. Morgan" based on its assumptions and calculations using data available to it and in light of current market conditions and available investment opportunities and is subject to the risks set forth herein and to be set forth more fully in the Memorandum. The target returns are for illustrative purposes only and are subject to significant limitations. An investor should not expect to achieve actual returns similar to the target returns shown above. Because of the inherent limitations of the target returns, potential investors should not rely on them when making a decision on whether or not to invest in the strategy. The target returns cannot account for the impact that economic, market, and other factors may have on the implementation of an actual investment program. Unlike actual performance, the target returns do not reflect actual trading, liquidity constraints, fees, expenses, and other factors that could impact the future returns of the strategy. The manager's ability to achieve the target returns is subject to risk factors over which the manager may have no or limited control. There can be no assurance that the Fund will achieve its investment objective, the Target Return or any other objectives. The return achieved may be more or less than the Target Return. The data supporting the Target Return is on file with J.P. Morgan and is available for inspection upon request.

Past performance does not guarantee future results. Total returns assumes reinvestment of any income. The deduction of an advisory fee reduces an investor's return. Actual account performance will vary on individual portfolio security selection and the applicable fee schedule. Fees are available upon request.

The following is an example of the effect of compounded advisory fees over a period of time on the value of a client's portfolio: A portfolio with a beginning value of \$100 million, gaining an annual return of 10% per annum would grow to \$259 million after 10 years, assuming no fees have been paid out. Conversely, a portfolio with a beginning value of \$100 million, gaining an annual return of 10% per annum, but paying a fee of 1% per annum, would only grow to \$235 million after 10 years. The annualized returns over the 10 year time period are 10.00% (gross of fees) and 8.91% (net of fees). If the fee in the above example was 0.25% per annum, the portfolio would grow to \$253 million after 10 years and return 9.73% net of fees. The fees were calculated on a monthly basis, which shows the maximum effect of compounding.

The MSCI Emerging Markets Index (net of foreign withholding taxes) is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of emerging markets. The performance of the index does not reflect the deduction of fees, such as investment management fees. Total return figures assume the reinvestment of dividends. The dividend is reinvested after deduction of withholding tax, applying the maximum rate to nonresident individual investors who do not benefit from double taxation treaties. An individual cannot invest directly in an index. Securities may be sold through J.P. Morgan Institutional Investments Inc., member FINRA. J.P. Morgan Investment Management Inc. is the legal entity responsible for the management of this product.

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## J.P. Morgan Asset Management

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Introduction to Pzena:  
Our Philosophy and Process

August 27, 2019

PREPARED FOR



**Contact:**  
Valerie Arnold  
arnold@pzena.com  
212.583.0371



## Why Pzena

Unwavering Commitment to Deep Value Investing	The Right Investment Team	Culture of Ownership
<ul style="list-style-type: none"><li>▪ Concentrated portfolio of deeply undervalued businesses<ul style="list-style-type: none"><li>▪ Superior Research</li><li>▪ Systematic Process</li></ul></li><li>▪ Long-term investment horizon</li></ul>	<ul style="list-style-type: none"><li>▪ 26-person global research team with 14 together for 7+ years</li><li>▪ Business people focused on evaluating businesses</li></ul>	<ul style="list-style-type: none"><li>▪ Broad and significant equity ownership</li><li>▪ 48 Partners – fosters a culture of shared purpose with clients</li></ul>

As of July 1, 2019.



## Our Client Base is Global



■ Pzena offices – New York, London and Melbourne

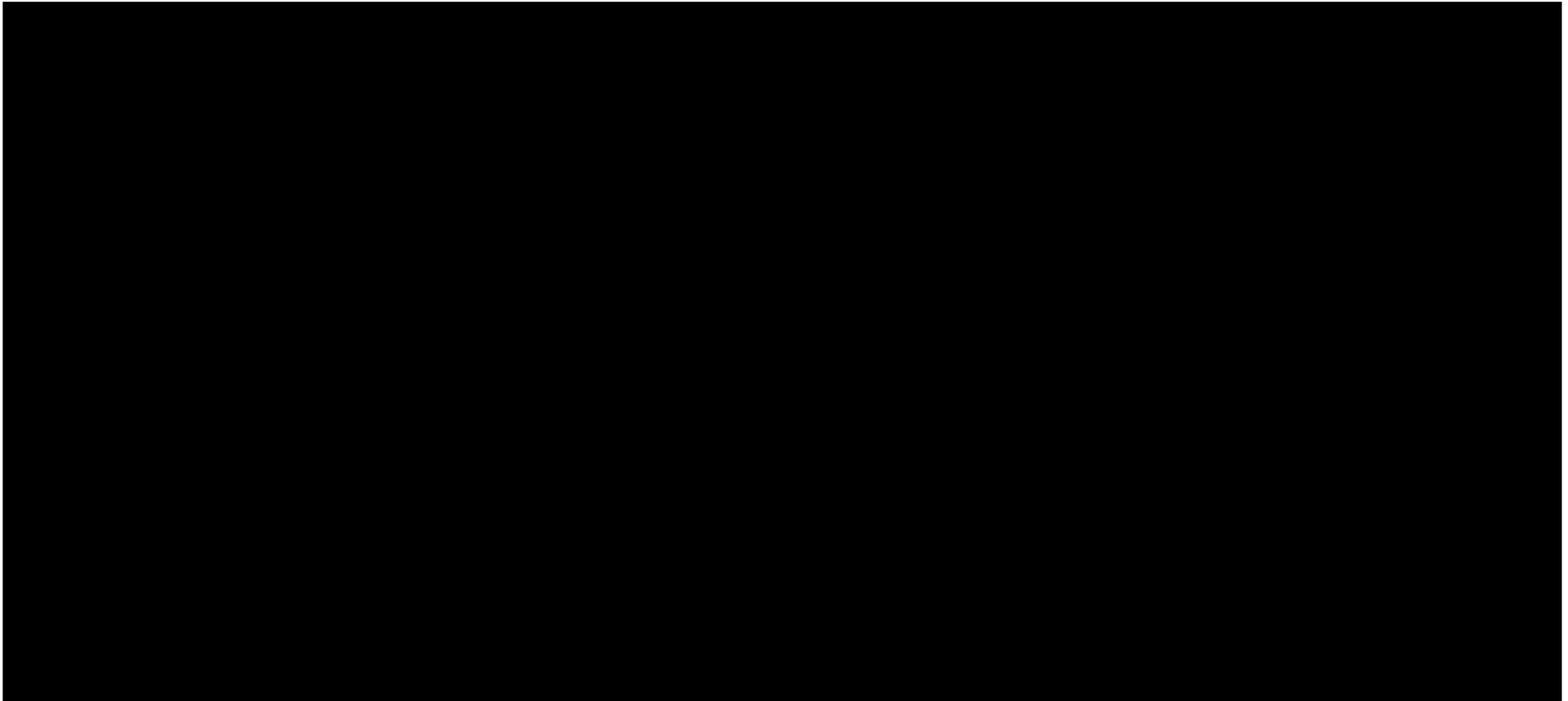
Pzena Assets Under Management as of June 28, 2019 = 37.4B USD  
Regional amounts may not total to firm-wide AUM due to rounding.

PZENA Investment Management



## We Build Long-Term Relationships

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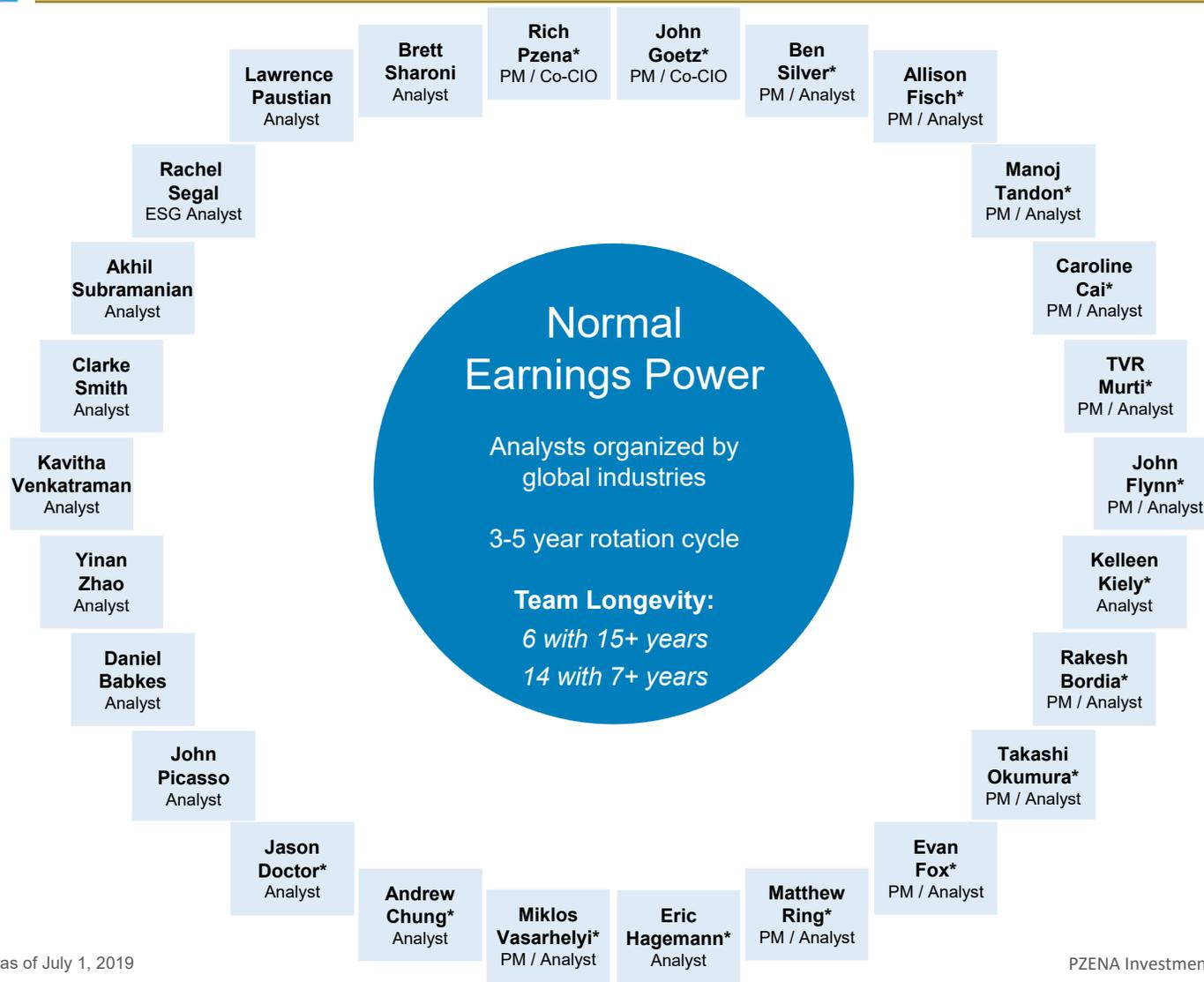


Pzena Investment Management does not use performance-based criteria in listing clients on its representative client list. The list includes institutional clients who have given permission for inclusion of their name on our list or who have otherwise publicly disclosed such relationship. It reflects client accounts across Pzena investment strategies and certain investors in funds managed by Pzena Investment Management as of June 28, 2019, and is updated periodically. It is not known whether the listed clients approve or disapprove of Pzena Investment Management, or the advisory services provided.

PZENA Investment Management



## Experienced Global Research Team



\*Partners as of July 1, 2019



## A History of the Firm: Building a Global Research Team

### Our Goal: Ability to search for value anywhere

	1996	2000	2004	2008	Today
Research Universe	<ul style="list-style-type: none"> <li>US Focused Value*</li> <li>US Small Cap</li> </ul>	<ul style="list-style-type: none"> <li>US Large Cap</li> <li>US Mid Cap</li> <li>US Best Ideas</li> </ul>	<ul style="list-style-type: none"> <li>Global</li> <li>International</li> </ul>	<ul style="list-style-type: none"> <li>European</li> <li>Emerging Markets</li> </ul>	<ul style="list-style-type: none"> <li>Japan</li> <li>International Small Cap</li> </ul>
Research Team	5	8	12	20	26

**Firm AUM as of June 28, 2019: \$37.4 Billion**

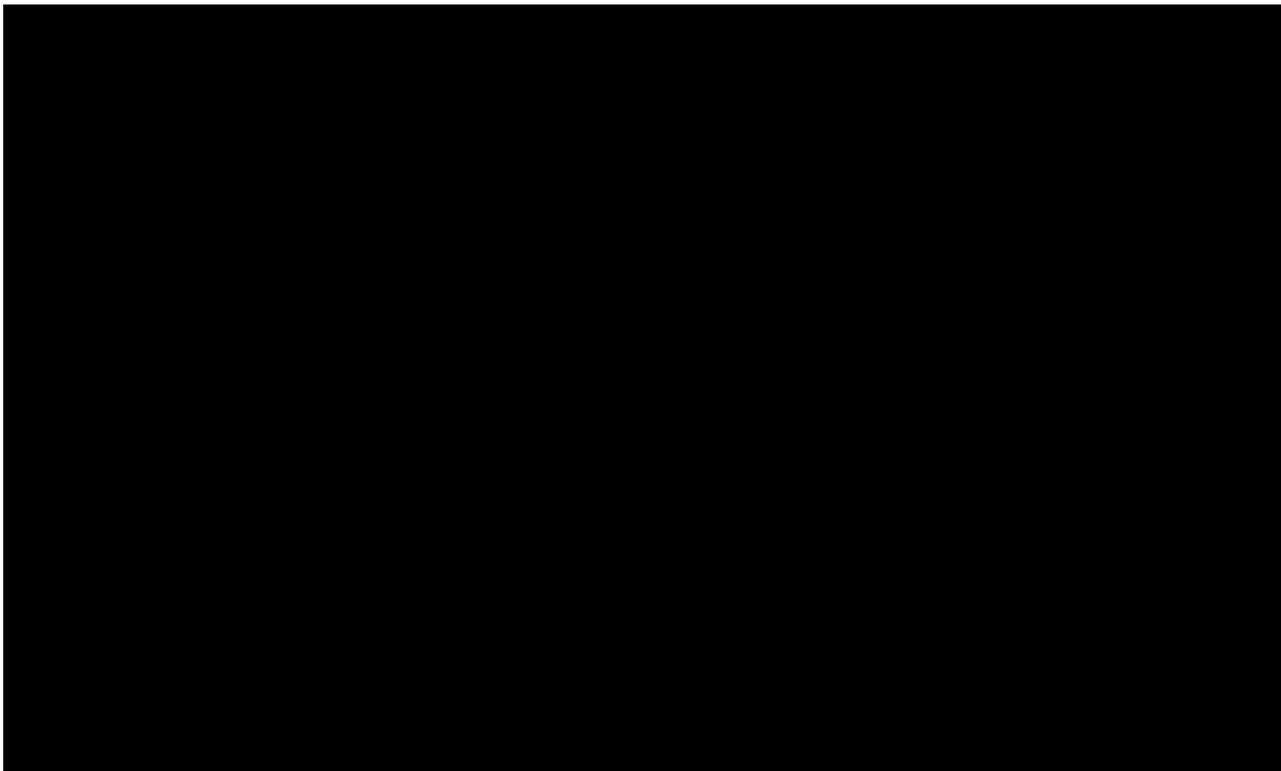
\*US Focused Value strategy universe is the top 1,000 largest US companies



## Investment Process: Characteristics of Investment Opportunities

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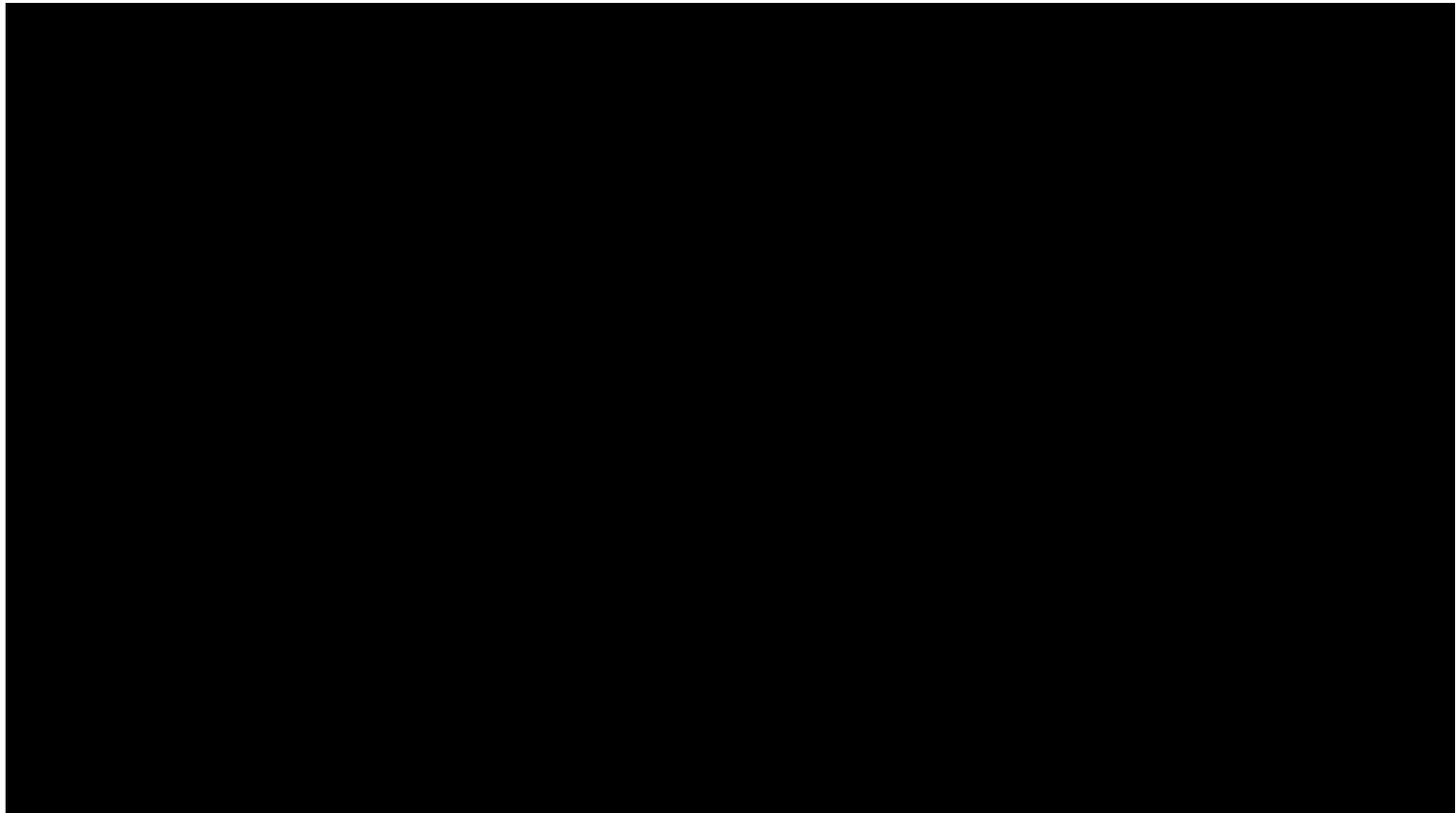
**We seek to expose our clients to skewed potential outcomes**





## Investment Process: Identify Opportunities

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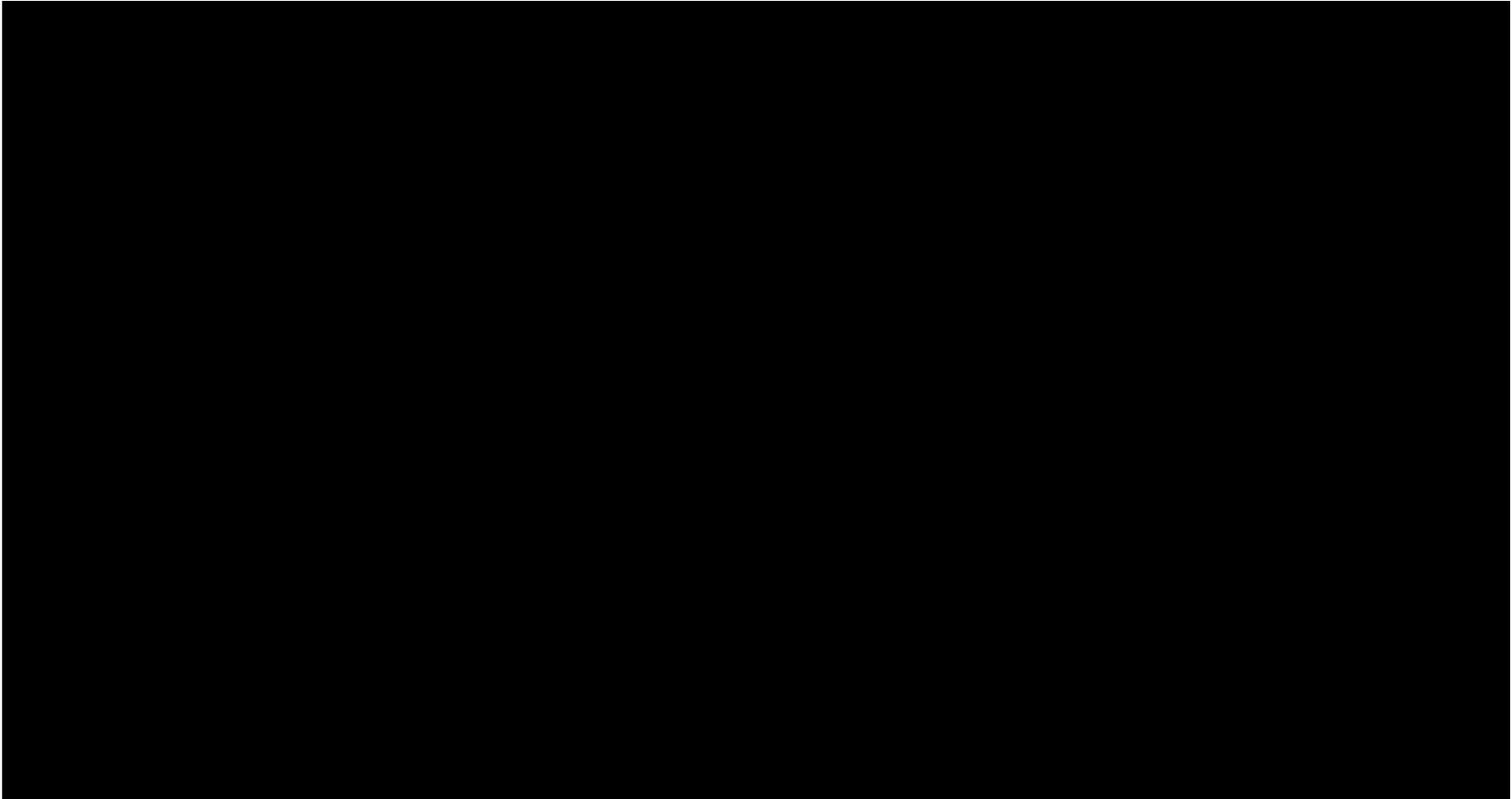
\*Subject to construction guidelines.  
Applies to Focused Value strategies. Positions in other strategies may be added to accommodate portfolio construction guidelines.

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## Investment Process: Would We Buy The Entire Business?

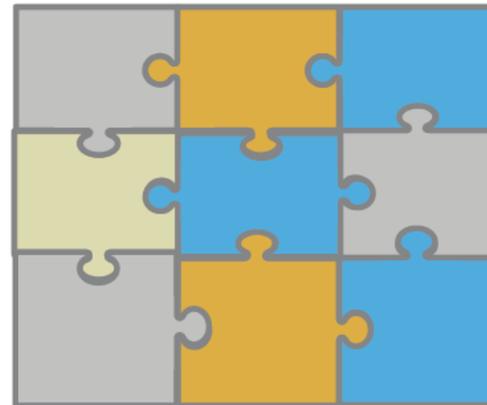
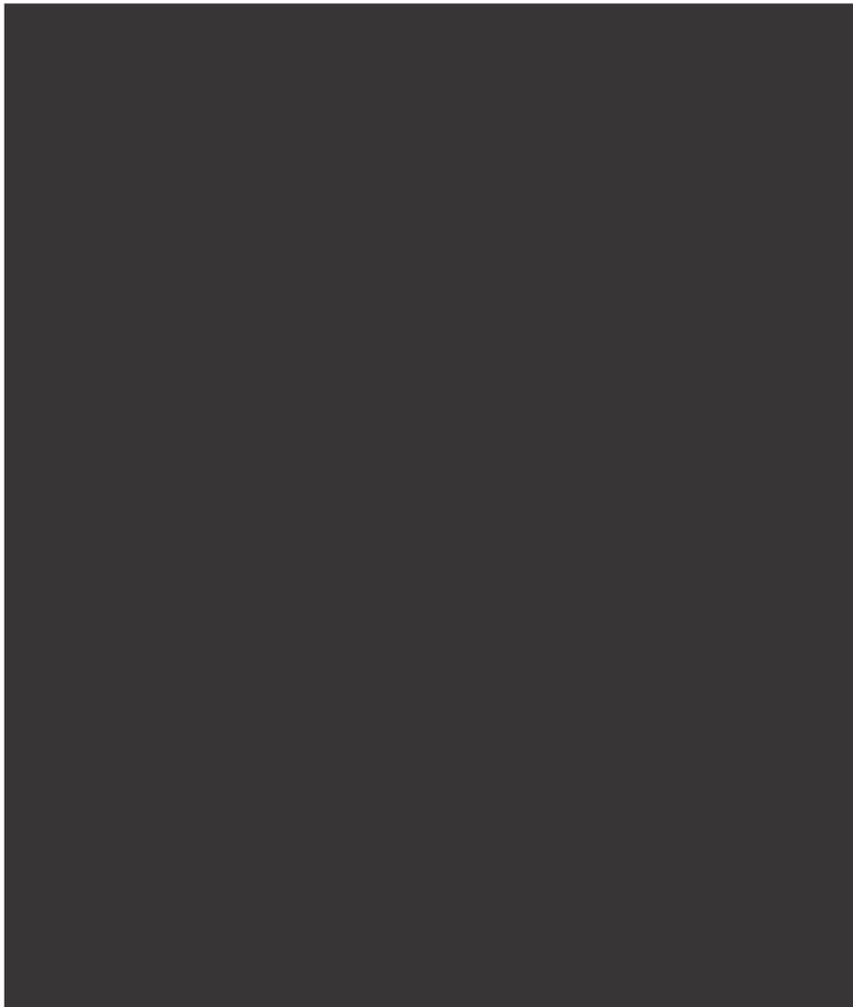
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## Portfolio Construction: Fitting the Pieces Together

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## Investment Process: Systematic Sell Discipline

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\*Subject to construction guidelines.  
Applies to Focused Value strategies. Positions in other strategies may be held to accommodate portfolio construction guidelines.

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## Investment Considerations: Emerging Markets Select Value

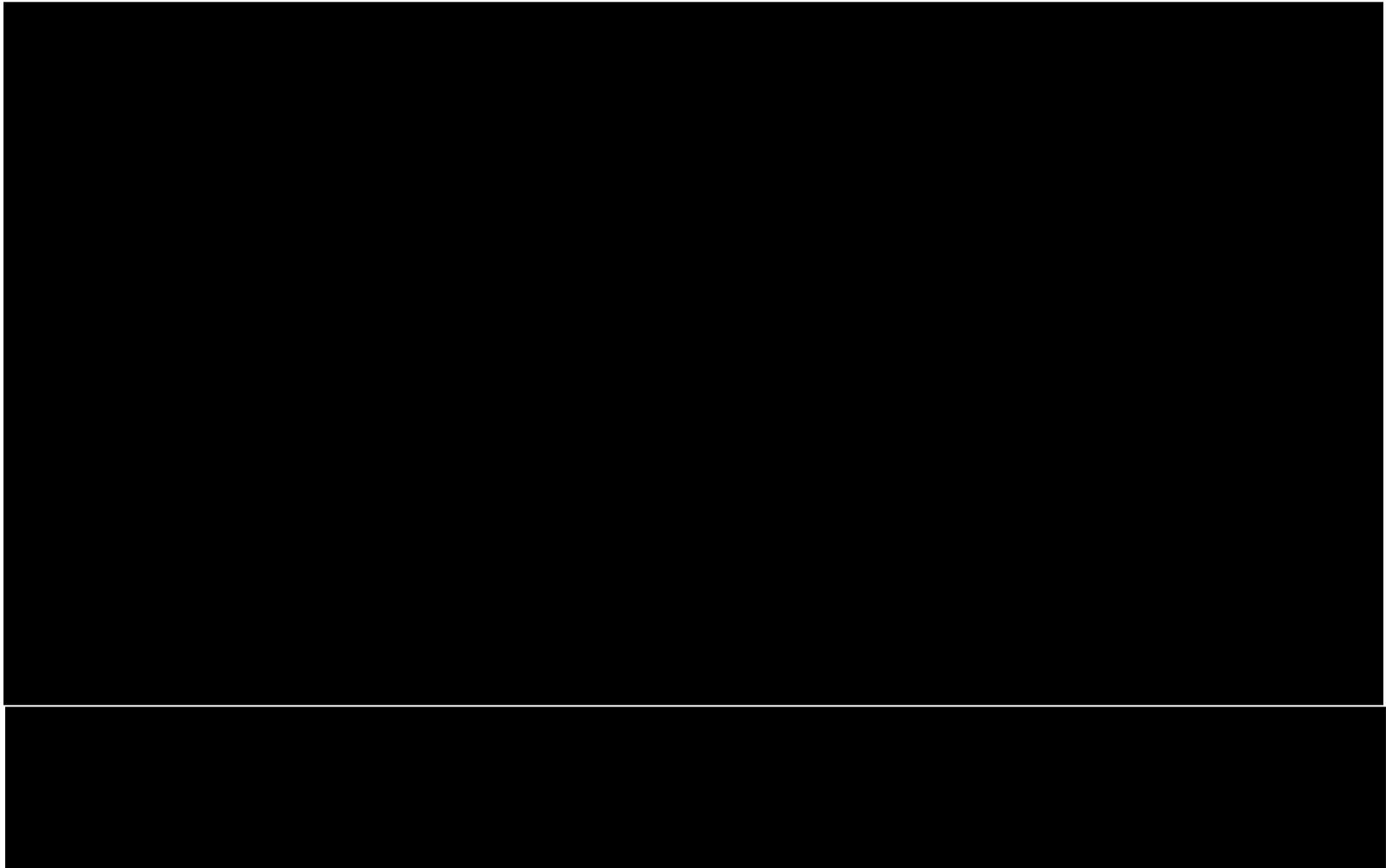
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## Portfolio Guidelines: Emerging Markets Select Value

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## Portfolio Characteristics: Emerging Markets Select Value

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**Past performance is not indicative of future returns.**

\*Emerging Markets Universe Median (1000 Largest Companies in Non-Developed Markets); ^3 Year

Source: FactSet, MSCI, Pzena Analysis

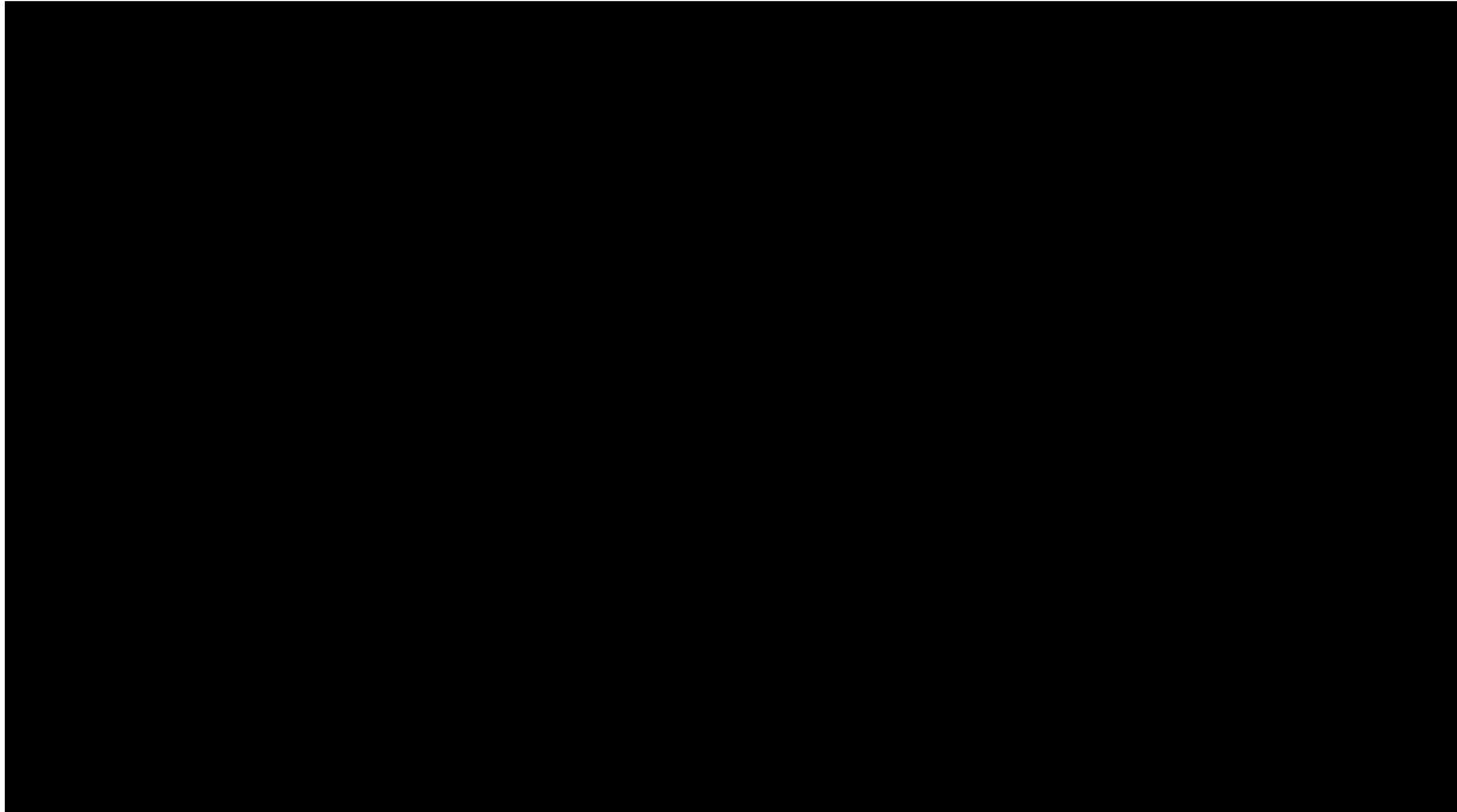
This information supplements the GIPS-compliant composite performance information appearing later in this presentation.

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## Sector Weights: Emerging Markets Select Value

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\*Emerging Markets Select Value Composite estimate

Source: FactSet, MSCI, The Global Industry Classification Standard (GICS®). This information supplements the GIPS-compliant composite performance information appearing later in this presentation.

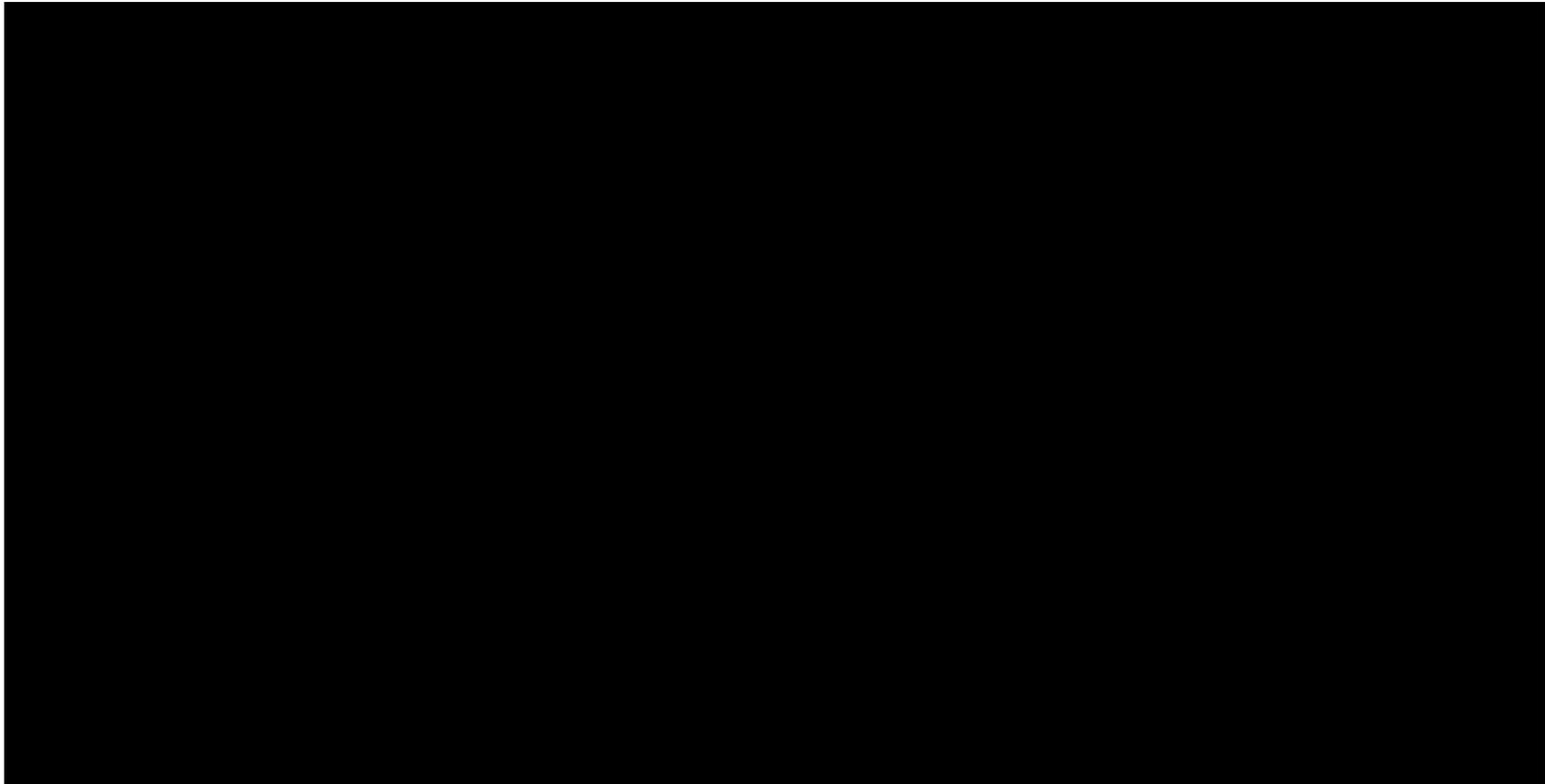
Sector weights adjusted for cash – may appear higher than actual. Numbers may not add to 100% due to rounding.

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## Regional / Country Weights: Emerging Markets Select Value

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\*Emerging Markets Select Value Composite estimate

Source: FactSet, MSCI

This information supplements the GIPS-compliant composite performance information appearing later in this presentation.

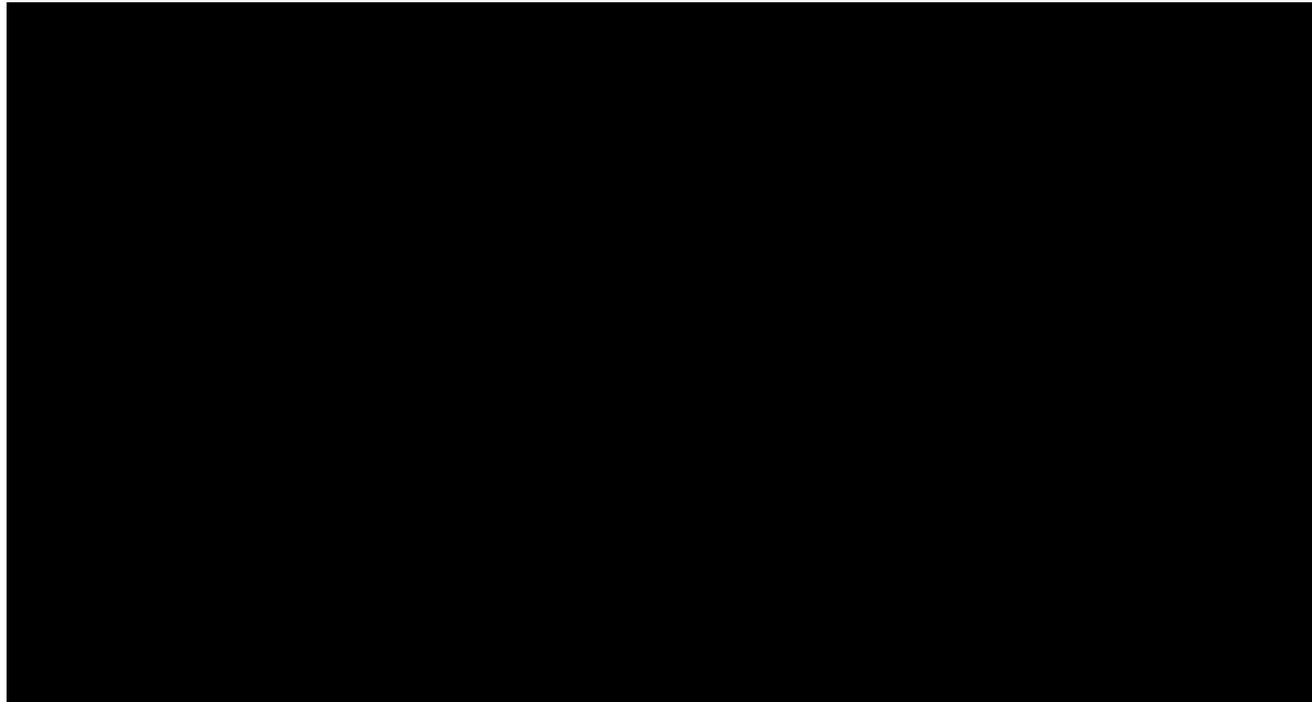
Region weights adjusted for cash – may appear higher than actual. Numbers may not add to 100% due to rounding.

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## Model Portfolio: Emerging Markets Select Value

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As of June 28, 2019.

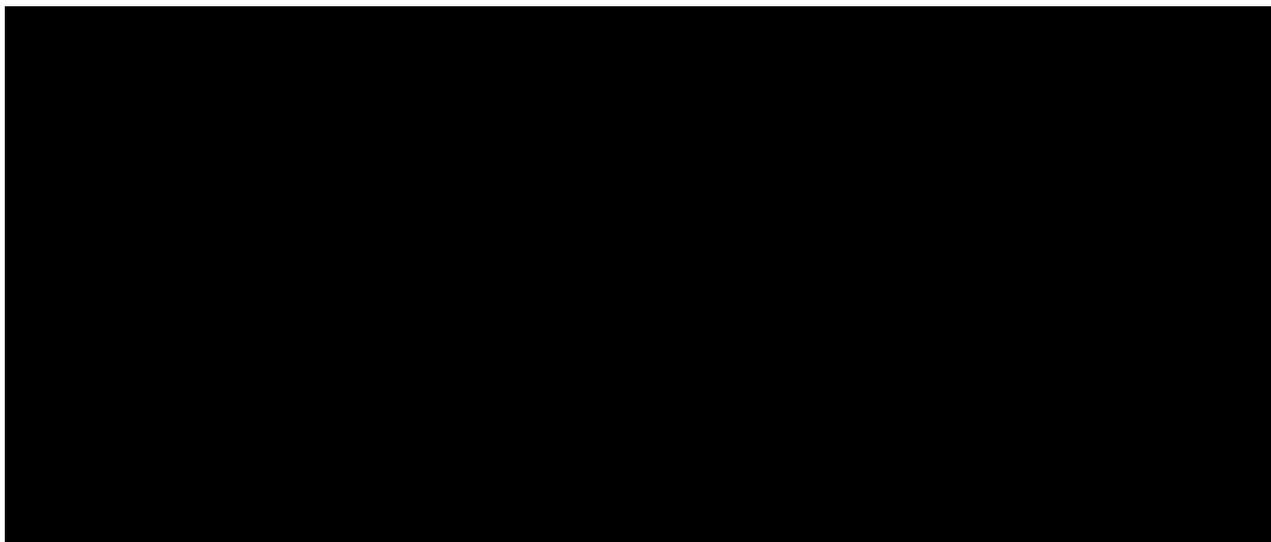
This information supplements the GIPS-compliant composite performance information appearing later in this presentation.

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## Model Portfolio: Emerging Markets Select Value (cont.)

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As of June 28, 2019.

This information supplements the GIPS-compliant composite performance information appearing later in this presentation.

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## Investment Performance: Emerging Markets Select Value

	2Q 2019	YTD	One Year	Annualized Returns	
				Three Year	Since Inception 11/01/15
Emerging Markets Select— Gross	-0.6%	6.8%	4.7%	13.0%	10.8%
Emerging Markets Select — Net	-0.6%	6.6%	4.1%	12.4%	10.3%
MSCI Emerging Markets Index*	0.6%	10.6%	1.2%	10.7%	8.6%
MSCI Emerging Markets Value Index*	1.0%	8.9%	5.0%	10.0%	7.8%

Returns through June 28, 2019.

Past performance is not indicative of future returns. For calendar year returns please refer to the GIPS Compliant Presentation and Notes to Performance at the end of this presentation.

\*The information provided is for equity returns including dividends net of withholding tax rates as calculated by MSCI. Returns are calculated in US dollars (“USD”). All performance numbers are preliminary and subject to change.

The performance in the body of this report is an abbreviated presentation of composite performance and is presented as supplemental information only. A full presentation of composite performance that adheres to the Global Investment Performance Standards (GIPS®) is provided later in this presentation.

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## Fee Schedule: Emerging Markets Select Value

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Minimum separate account size is \$25 million  
All fees are in US dollars



## Global Valuation Dispersion Remain Wide



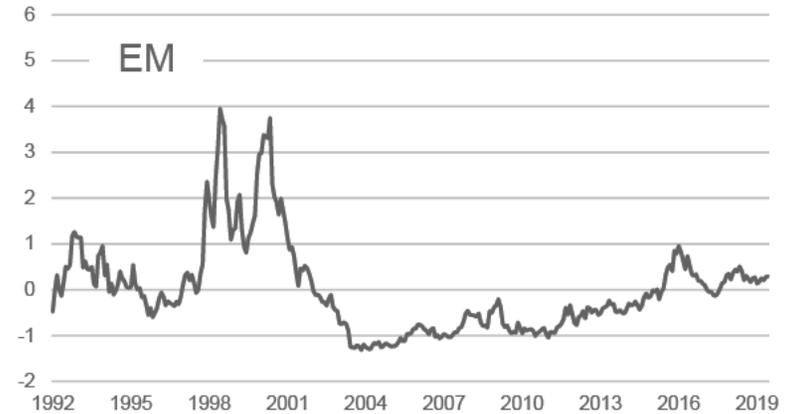
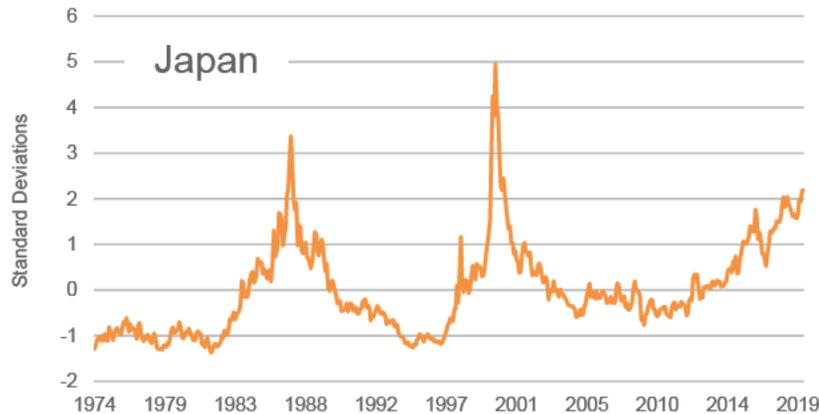
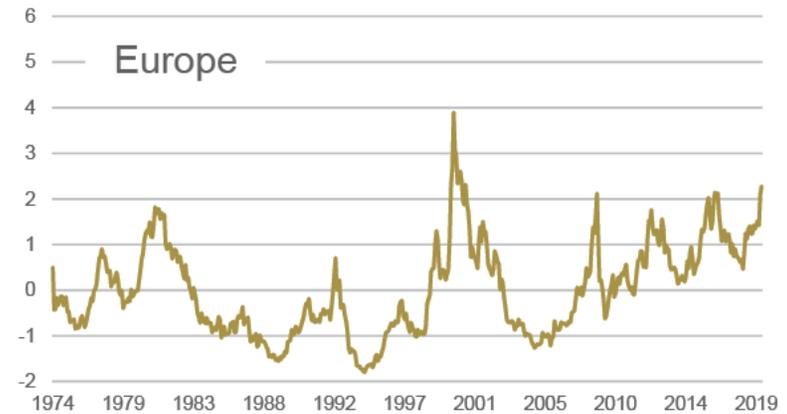
Data through June 2019. Source: Sanford C. Bernstein & Co., Pzena analysis  
Dispersion based on price to book; equally-weighted data.  
Universe is the largest ~1,600 stocks by market capitalization in developed world.

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## Regional Valuation Dispersions Remain Wide

1<sup>st</sup> Quintile vs. 5<sup>th</sup> Quintile Dispersion by Region  
Expressed in Standard Deviations



Data through June 2019. Source: Sanford C. Bernstein & Co., Pzena analysis  
Dispersion based on price to book; equally-weighted data.  
Universes comprise the largest stocks by market capitalization for each region as follows:  
~1000 largest US; ~300 largest Japanese; ~500 largest European; ~1100 largest emerging markets.

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## Global Valuations: Price-to-Normalized Earnings<sup>1</sup> Mid-Points

	Cheapest Quintile	Universe <sup>2</sup>
Global	8.5	17.1
US	9.6	17.5
Europe	7.8	16.2
Japan	7.8	16.4
Emerging Markets	7.3	15.3

As of June 2019

Source: FactSet, Reuters, Pzena analysis

<sup>1</sup>Pzena estimates. <sup>2</sup>Universes comprise the largest stocks by market capitalization for each region as follows:

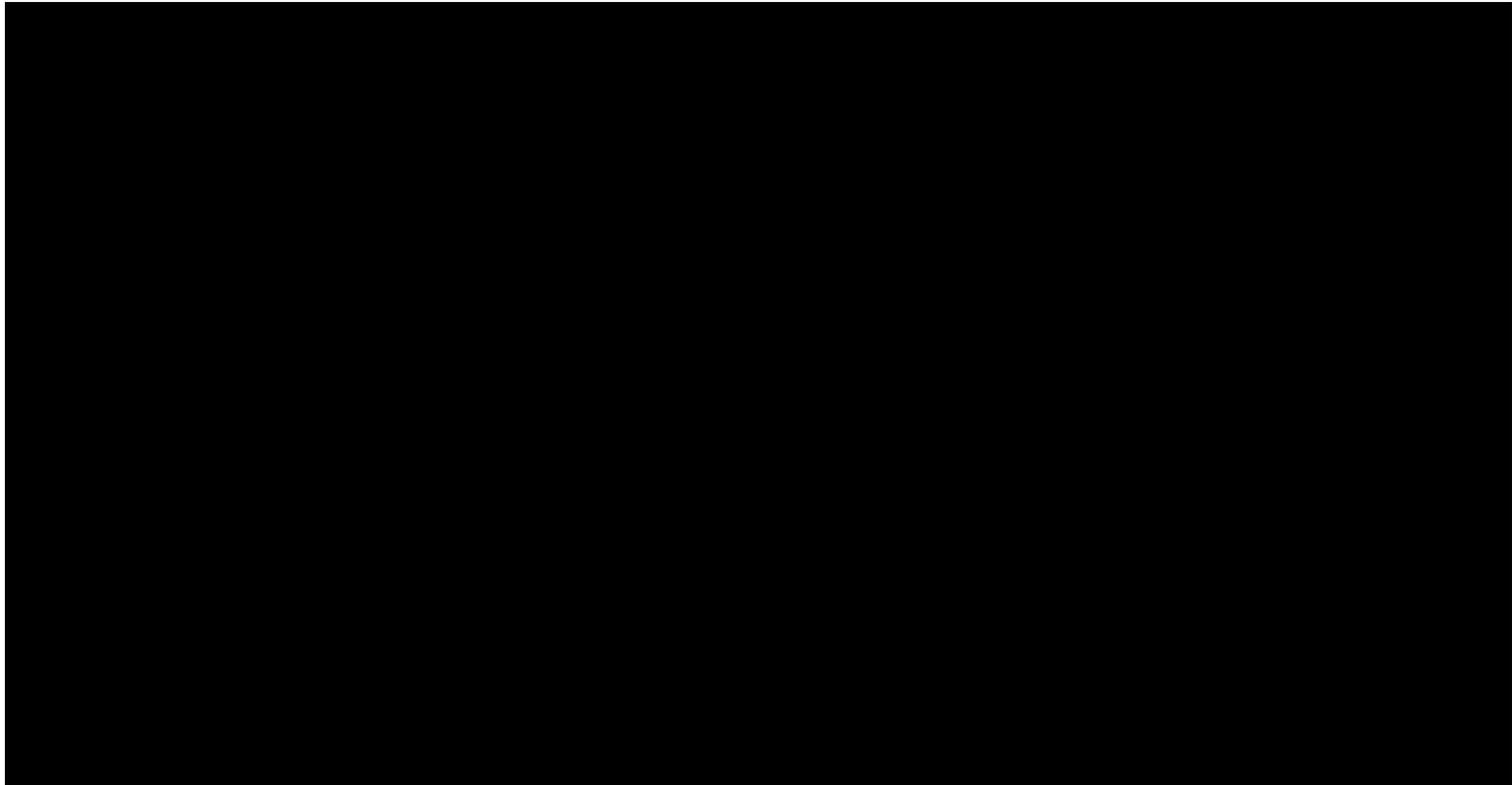
~2,000 largest global; ~1,000 largest US; ~750 largest European; ~750 largest Japanese; ~1,500 largest emerging markets.

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## Similar Fundamentals at Different Valuations

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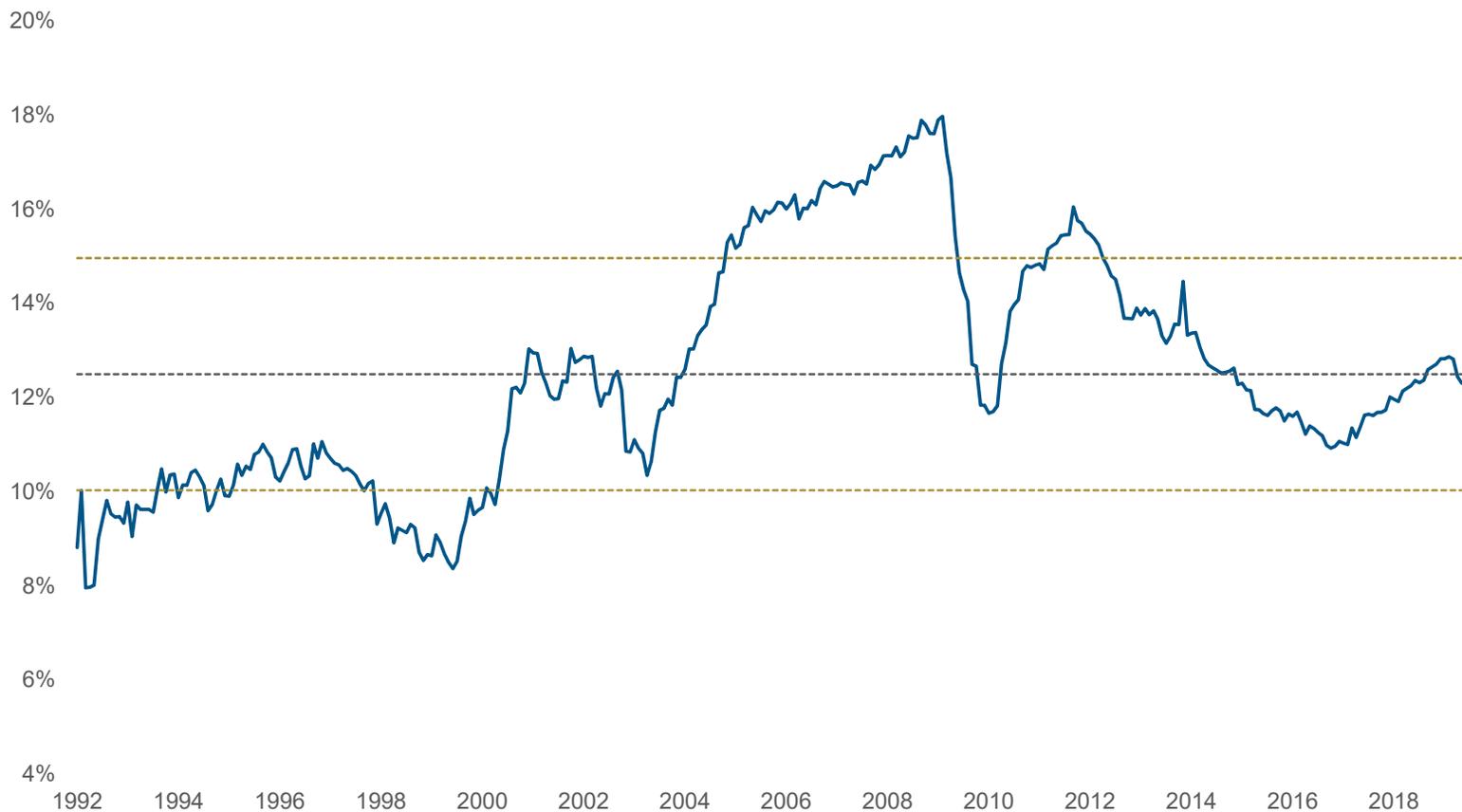
Source: FactSet, Reuters, Pzena analysis  
Valuation quintile buckets based on Pzena's price-to-normalized earnings estimates.  
P/E and P/S ratios are calculated using average sell-side consensus 1-yr forward estimates.  
Return on equity and revenue growth calculated over trailing 10-year period.  
Universe is the largest ~1,500 largest stocks in non-developed markets by market capitalization.  
Data as of June 2019.  
Does not represent any specific Pzena product or service.  
Past performance is not indicative of future returns.

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## Emerging-Market Return on Equity Normalizing

MSCI Emerging Markets Index Return on Equity  
1992 – June 2019



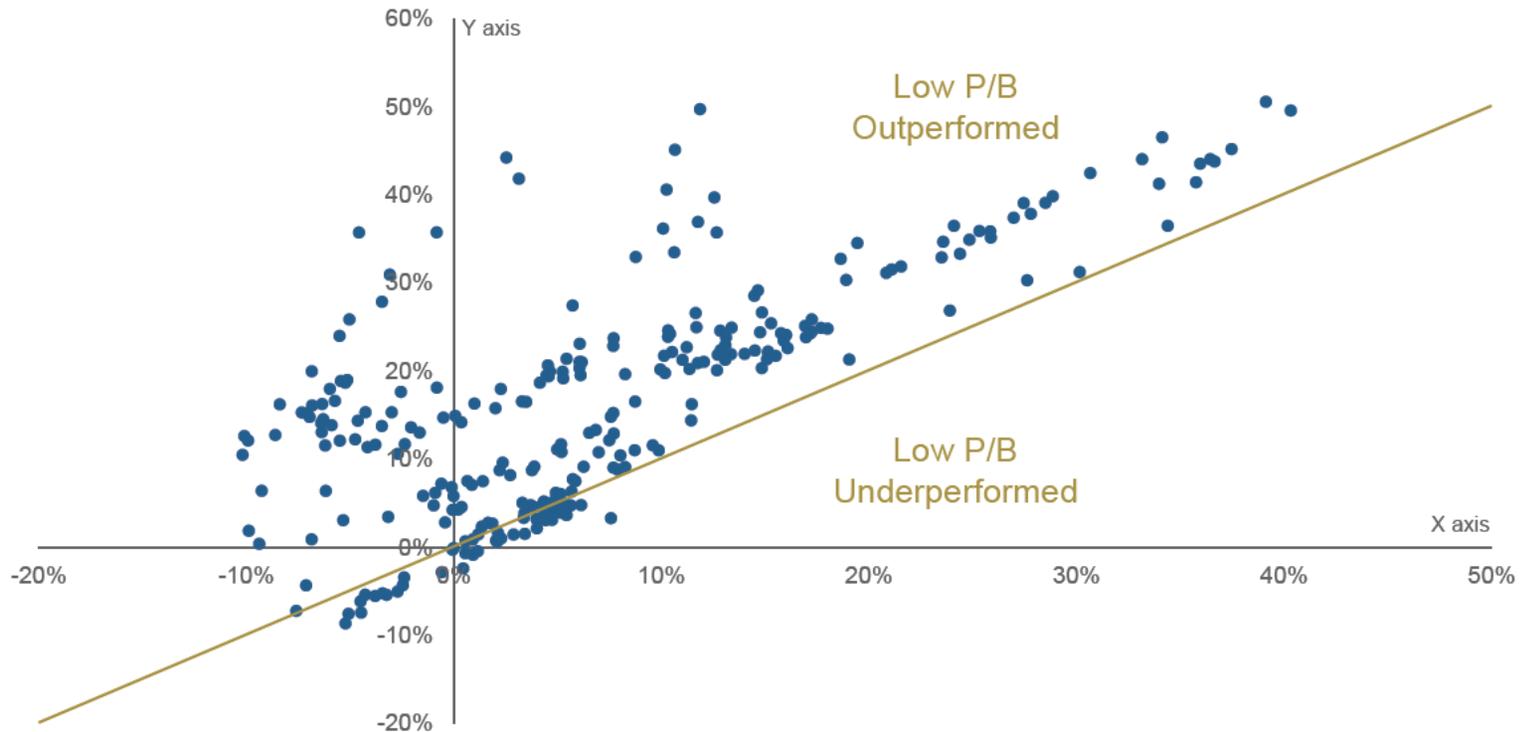
Source: Sanford C. Bernstein & Co.  
Past performance is not indicative of future returns.

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## Undervalued Stocks Have Outperformed Over Time

5-Year Rolling Returns of Low Price/Book\* vs. MSCI EM Index  
1992 – June 2019



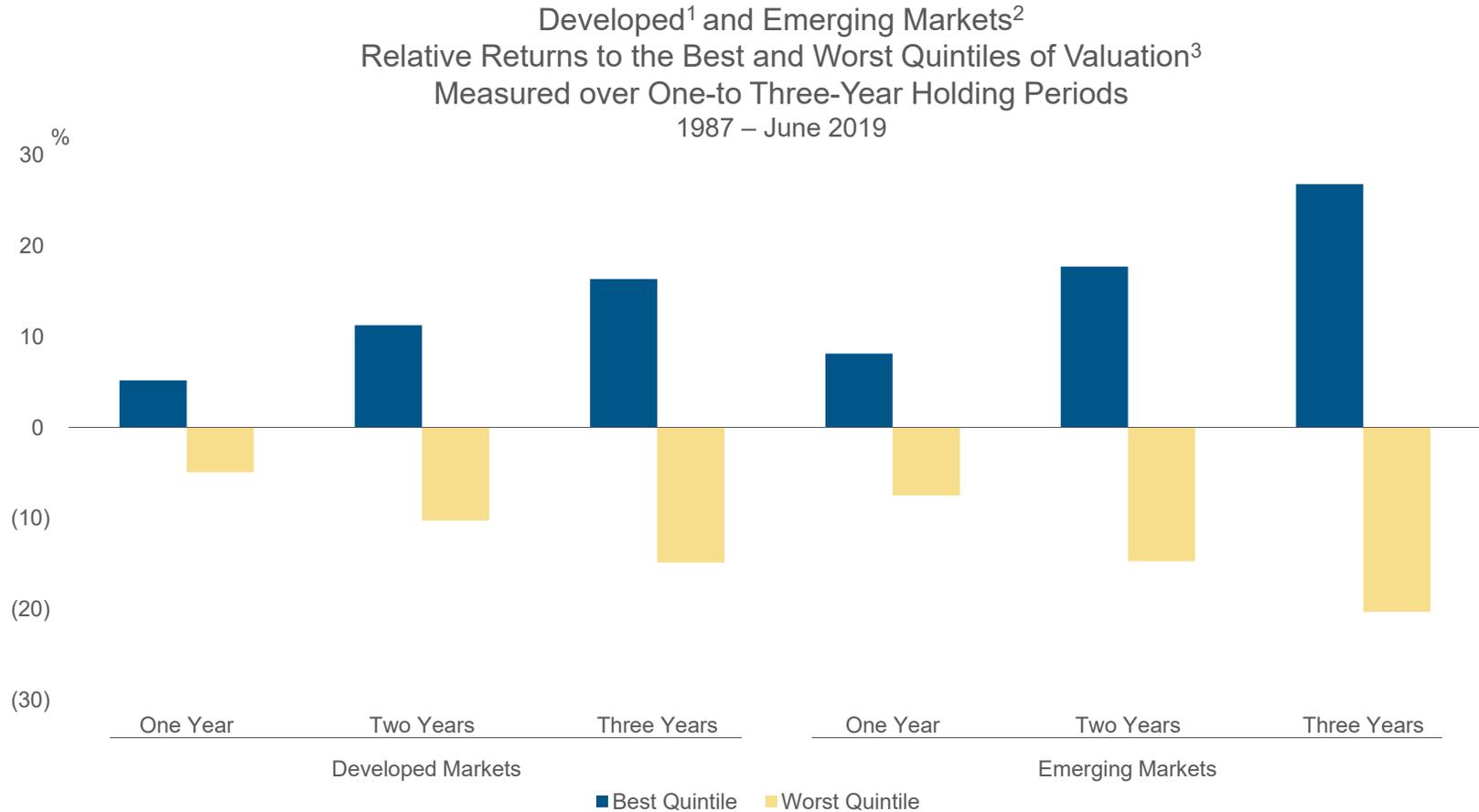
Y axis: Monthly Rolling 5-year USD annualized return of Low Price/Book\*  
X axis: Monthly Rolling 5-year USD annualized return of MSCI Emerging Markets Index (gross returns)

Source: MSCI, Sanford C. Bernstein & Co., Pzena analysis  
\*Cheapest quintile price to book of largest ~1,100 stocks in emerging markets (equally-weighted data);  
Does not represent any specific Pzena product or service.  
Past performance is not indicative of future returns.

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## Value has Worked Even Better in Emerging Markets



Source: Empirical Research Partners  
Based on Empirical Research Partners' multi-factor model.

<sup>1</sup>Proxy for MSCI World Universe.

<sup>2</sup>Proxy for MSCI Emerging Markets Universe.

<sup>3</sup>Developed market returns are USD-hedged. USD returns for emerging markets; equally-weighted data.

Past performance is not indicative of future returns.

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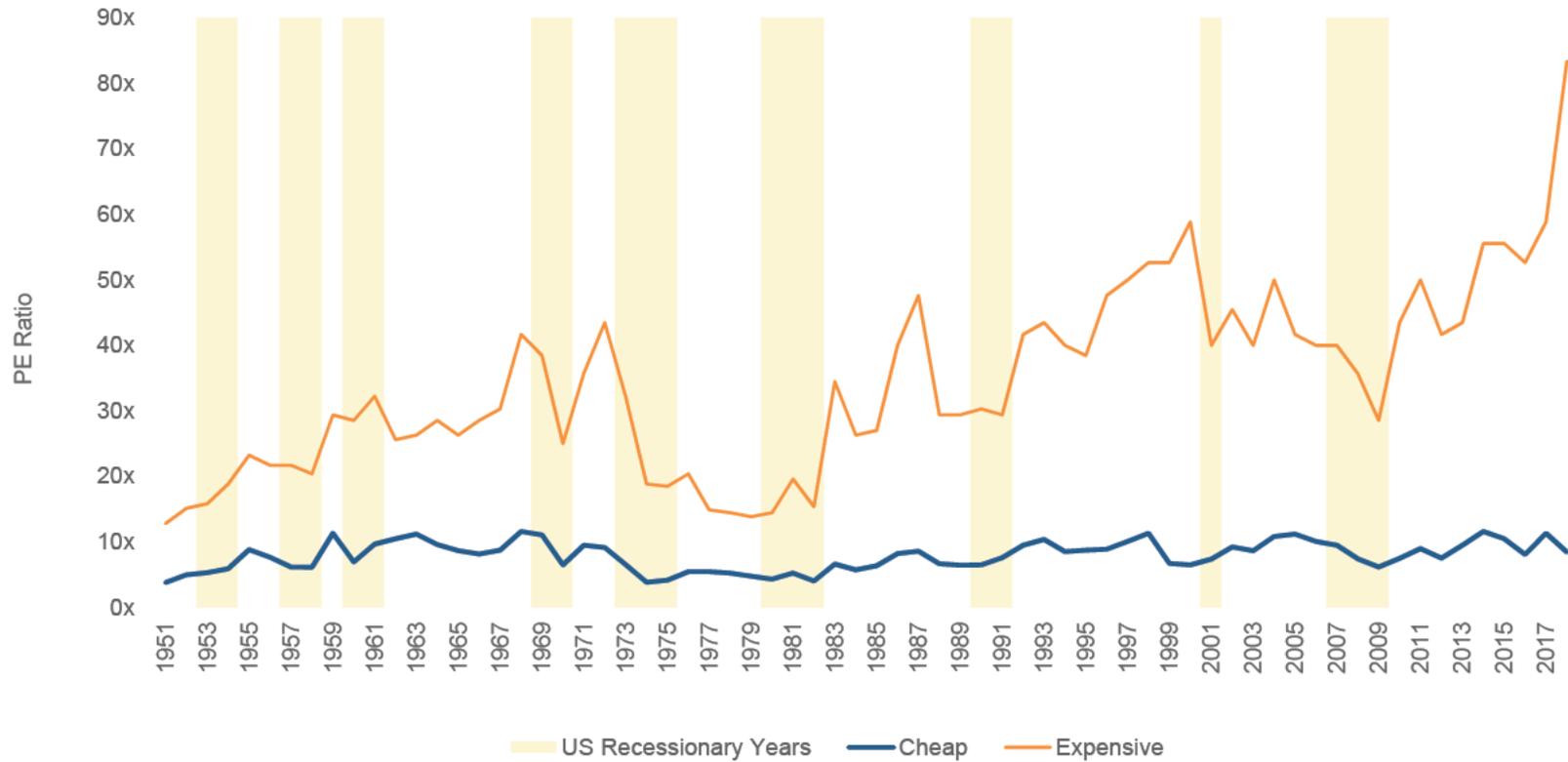


# Appendix



## The Cost of Growth Just Keeps Growing

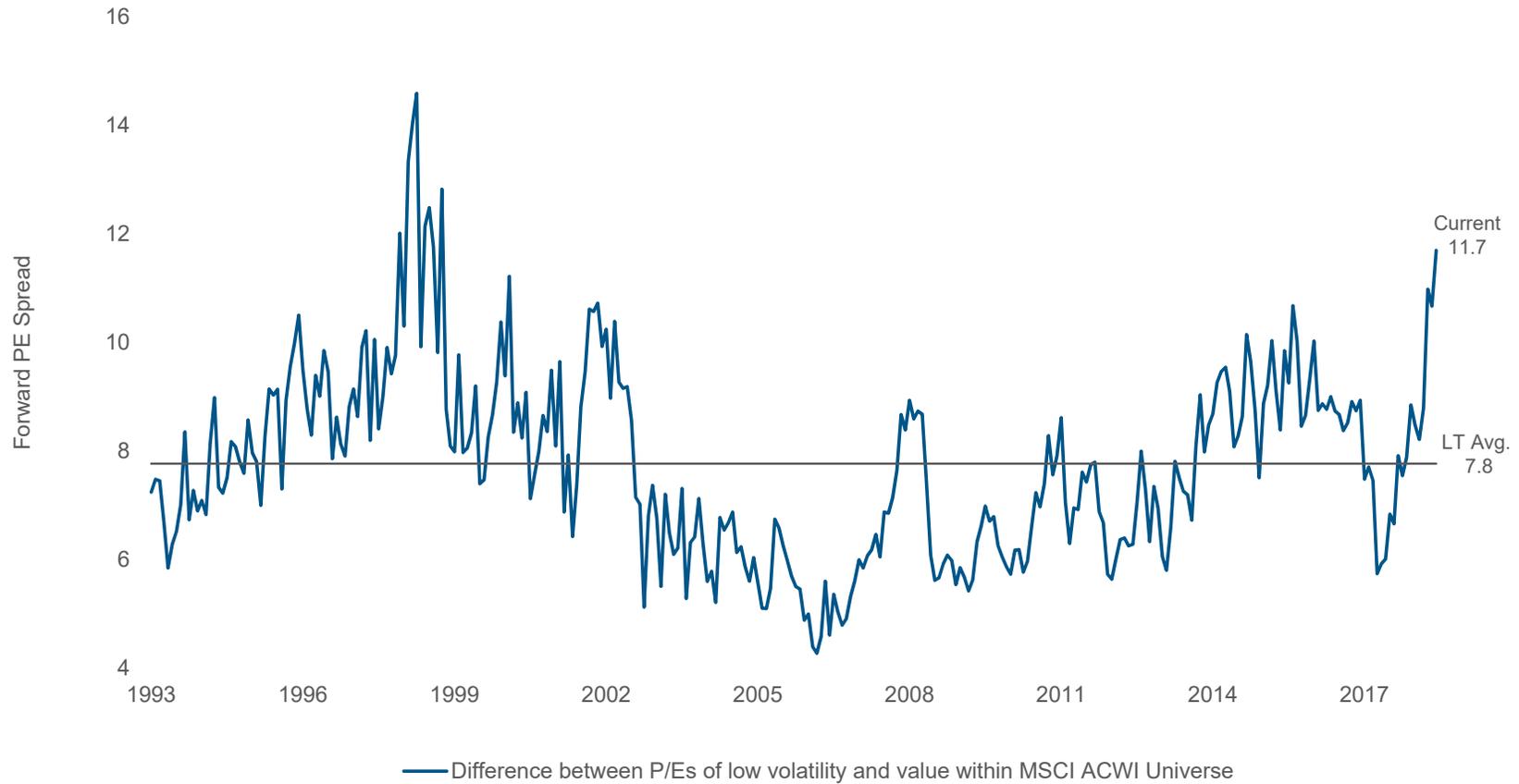
Record Valuation Dispersion:  
All of the Multiple Expansion is in the Most Expensive Part of the Market



Source: National Bureau of Economic Research, Sanford C. Bernstein & Co., Pzena analysis  
The horizontal lines show the market-cap weighted trailing P/E ratios for the most expensive and cheapest quintiles of the US market.  
Data from 1951 through 2018. Universe is the largest ~2,000 US stocks ranked by market capitalization.



## Perceived Low-Volatility: Trading at Relative Historical Highs Compared to Value Shares



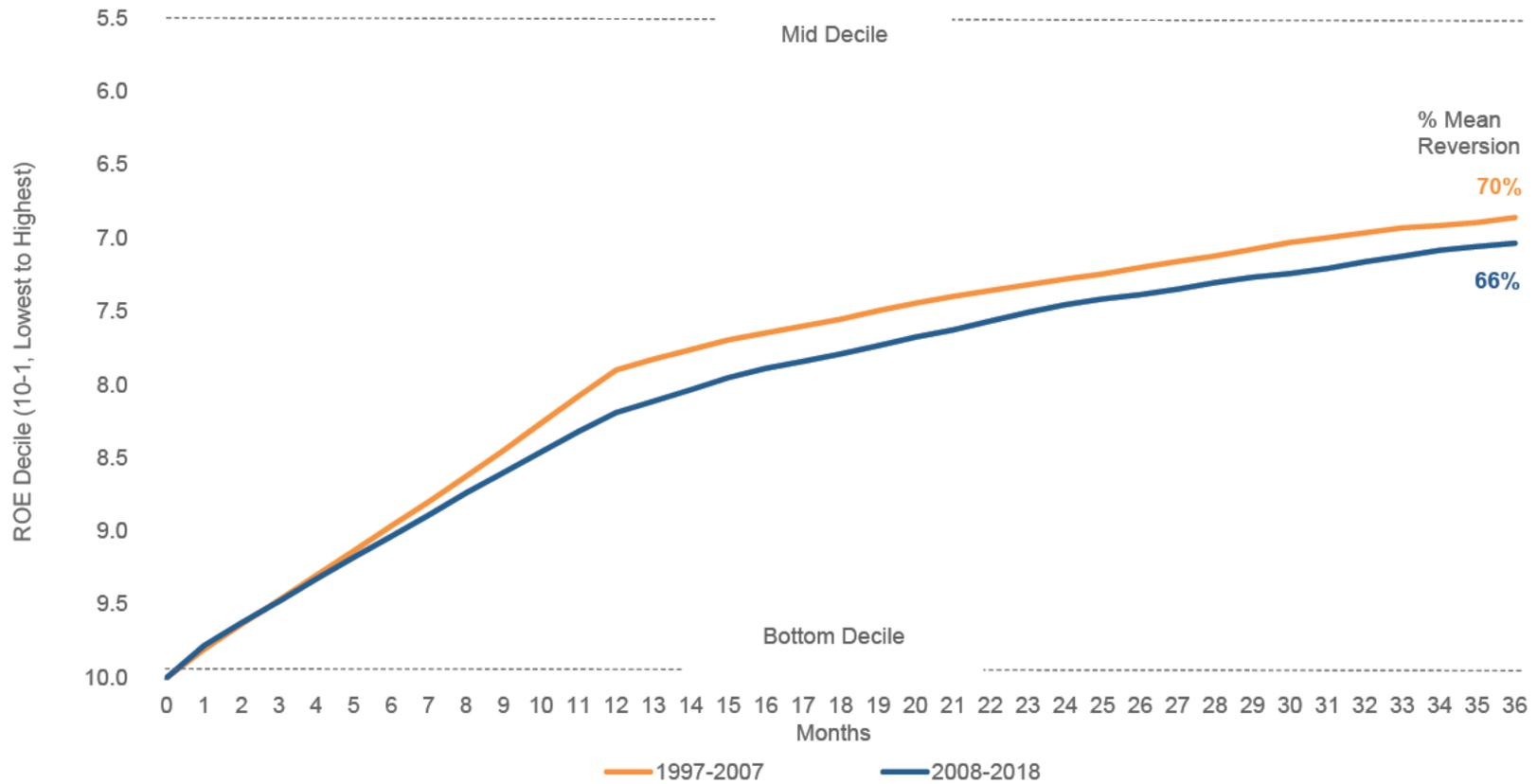
Source: J.P. Morgan Chase & Co.  
 Data from 1993 through May 2019.  
 Value is the cheapest quintile in the universe, defined as the combination of P/E, P/B and P/S.  
 Low Volatility is the lowest quintile in the universe based on realized 1-year volatility.

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## Businesses with Low ROEs are Catching Up

Mean Reversion of Low ROE Stocks in S&P 500



Source: J.P. Morgan Chase & Co.  
The horizontal lines represent the lowest ~50 ROE stocks in the universe.

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## Emerging Markets Select Value: Portfolio Manager Biographies



### **Rakesh Bordia**

Principal and Portfolio Manager. Mr. Bordia is a co-portfolio manager for the Emerging Markets strategies. Mr. Bordia became a member of the firm in 2007. Prior to joining Pzena Investment Management, Mr. Bordia was a principal at Booz Allen Hamilton focusing on innovation and growth strategies, and a software engineer at River Run Software Group. He earned a Bachelor of Technology in Computer Science and Engineering from the Indian Institute of Technology, Kanpur, India and an M.B.A. from the Indian Institute of Management, Ahmedabad, India.



### **Allison Fisch**

Principal and Portfolio Manager. Ms. Fisch is a co-portfolio manager for the International and Emerging Markets strategies, along with the Global Best Ideas service. Ms. Fisch became a member of the firm in 2001. Prior to joining Pzena Investment Management, Ms. Fisch was a business analyst at McKinsey & Company. She earned a B.A. summa cum laude in Psychology and a minor in Drama from Dartmouth College. At Dartmouth, Ms. Fisch was a member of the Phi Beta Kappa and Psi Chi national honor societies.



### **Caroline Cai, CFA**

Managing Principal, Portfolio Manager, and member of the firm's Executive Committee. Ms. Cai is a co-portfolio manager for the Global, International, European and Emerging Markets strategies, and the Financial Opportunities service. Ms. Cai became a member of the firm in 2004. Prior to joining Pzena Investment Management, Ms. Cai was a senior analyst at AllianceBernstein LLP, and a business analyst at McKinsey & Company. She earned a B.A. summa cum laude in Math and Economics from Bryn Mawr College. Ms. Cai holds the Chartered Financial Analyst designation.



### **John P. Goetz**

Managing Principal, Co-Chief Investment Officer, Portfolio Manager, and member of the firm's Executive Committee. Mr. Goetz is a co-portfolio manager for the Global, International, European, Emerging Markets and Japan Focused Value strategies. He also previously served as the Director of Research and was responsible for building and training the research team. Mr. Goetz became a member of the firm in 1996. Prior to joining Pzena Investment Management, Mr. Goetz held a range of key positions at Amoco Corporation, his last as the Global Business Manager for Amoco's \$1 billion polypropylene business where he had bottom-line responsibility for operations and development worldwide. Prior positions included strategic planning, joint venture investments, and project financing in various oil and chemical businesses. Before joining Amoco, Mr. Goetz had been employed by The Northern Trust Company and Bank of America. He earned a B.A. summa cum laude in Mathematics and Economics from Wheaton College and an M.B.A from the Kellogg School at Northwestern University.



## Investment Management Team

### Daniel L. Babkes

Senior Research Analyst. Mr. Babkes became a member of the firm in 2016. Prior to joining Pzena Investment Management, Mr. Babkes worked as an analyst at LG Capital Management, an event-driven hedge fund, and as an investment banker in the restructuring group at Evercore Partners. He began his finance career as a trader at Chesapeake Partners, a multi-billion dollar hedge fund. He earned a B.A. cum laude from Amherst College and an M.B.A. from the Wharton School of the University of Pennsylvania.

### Rakesh Bordia

Principal and Portfolio Manager. Mr. Bordia is a co-portfolio manager for the Emerging Markets strategies. Mr. Bordia became a member of the firm in 2007. Prior to joining Pzena Investment Management, Mr. Bordia was a principal at Booz Allen Hamilton focusing on innovation and growth strategies, and a software engineer at River Run Software Group. He earned a Bachelor of Technology in Computer Science and Engineering from the Indian Institute of Technology, Kanpur, India and an M.B.A. from the Indian Institute of Management, Ahmedabad, India.

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### Andrew Chung, CFA

Principal and Senior Research Analyst. Mr. Chung became a member of the firm in 2014. Prior to joining Pzena Investment Management, Mr. Chung was a senior associate at Dodge & Cox and began his career as a research associate at Sanford C. Bernstein. He earned a B.S.E. summa cum laude in Finance and a B.A.S. in Computer Science from the University of Pennsylvania. Mr. Chung holds the Chartered Financial Analyst designation.

### Jason Doctor, CFA

Principal and Senior Research Analyst. Mr. Doctor became a member of the firm in 2014. Prior to Pzena Investment Management, Mr. Doctor was a senior research analyst at Evercore Asset Management, a research analyst at Viking Global Investors, and a research associate at Citigroup Asset Management. He earned a B.S.F.S. in International Economics from Georgetown University and holds the Chartered Financial Analyst designation.

### Eric M. Hagemann, CFA

Principal and Senior Research Analyst. Mr. Hagemann became a member of the firm in 2011. Prior to joining Pzena Investment Management, Mr. Hagemann was a summer analyst at Echo Street Capital Management, where he researched prospective investments in a generalist capacity. He earned a B.A. magna cum laude from Columbia College, graduating with departmental honors in Philosophy and an M.B.A. from Columbia Business School. Mr. Hagemann holds the Chartered Financial Analyst designation.

### Allison Fisch

Principal and Portfolio Manager. Ms. Fisch is a co-portfolio manager for the International and Emerging Markets strategies, along with the Global Best Ideas service. Ms. Fisch became a member of the firm in 2001. Prior to joining Pzena Investment Management, Ms. Fisch was a business analyst at McKinsey & Company. She earned a B.A. summa cum laude in Psychology and a minor in Drama from Dartmouth College. At Dartmouth, Ms. Fisch was a member of the Phi Beta Kappa and Psi Chi national honor societies.

### John J. Flynn

Principal and Portfolio Manager. Mr. Flynn is a co-portfolio manager for the U.S. Mid Cap and Large Cap strategies, along with the Focused Value and Small Cap Focused Value services. Mr. Flynn became a member of the firm in 2005. Prior to joining Pzena Investment Management, Mr. Flynn was an associate at Weston Presidio, a middle-market private equity investment firm. He earned a B.A. in Music from Yale University and an M.B.A. with distinction from the Harvard Business School.

### Evan D. Fox, CFA

Principal and Portfolio Manager. Mr. Fox is a co-portfolio manager for the Small Cap Focused Value service. Mr. Fox became a member of the firm in 2007. Prior to joining Pzena Investment Management, Mr. Fox was a teaching assistant for the Wharton School Finance Department, a summer analyst at Lazard, and a summer researcher at Lucent Technologies. He earned a B.S. summa cum laude in Economics from the Wharton School of the University of Pennsylvania and a B.A.S. from the University of Pennsylvania School of Engineering and Applied Science. Mr. Fox holds the Chartered Financial Analyst designation.



## Investment Management Team

### John P. Goetz

Managing Principal, Co-Chief Investment Officer, Portfolio Manager, and member of the firm's Executive Committee. Mr. Goetz is a co-portfolio manager for the Global, International, European, Emerging Markets and Japan Focused Value strategies. He also previously served as the Director of Research and was responsible for building and training the research team. Mr. Goetz became a member of the firm in 1996. Prior to joining Pzena Investment Management, Mr. Goetz held a range of key positions at Amoco Corporation, his last as the Global Business Manager for Amoco's \$1 billion polypropylene business where he had bottom-line responsibility for operations and development worldwide. Prior positions included strategic planning, joint venture investments, and project financing in various oil and chemical businesses. Before joining Amoco, Mr. Goetz had been employed by The Northern Trust Company and Bank of America. He earned a B.A. summa cum laude in Mathematics and Economics from Wheaton College and an M.B.A. from the Kellogg School at Northwestern University.

### Kelleen Kiely, CFA

Principal and Senior Research Analyst. Ms. Kiely became a member of the firm in 2005. Prior to joining Pzena Investment Management, she was an HIV educator for the TOTAL HIV Prevention Program at St. Christopher's Inc., a research assistant for Brown University Medical School, and as a research associate for the Y.R. Gaitonde Centre for AIDS Research and Education in Chennai, India. She earned a B.A. in Anthropology-Linguistics from Brown University. Ms. Kiely holds the Chartered Financial Analyst designation.

### TVR Murti

Principal and Portfolio Manager. Mr. Murti is a co-portfolio manager for the Long/Short Value service. Mr. Murti became a member of the firm in 2005. Prior to joining Pzena Investment Management, Mr. Murti was a business manager at Capital One Financial Corporation, a senior consultant with Coopers and Lybrand Consulting, and an engineer with Suzuki Motor Company's subsidiary in India. He earned a Bachelor of Technology in Mechanical Engineering with honors from the Indian Institute of Technology, Kharagpur, India and an M.B.A. with distinction from the Indian Institute of Management, Ahmedabad, India.

### Takashi Okumura

Principal and Portfolio Manager. Mr. Okumura is the portfolio manager for the Japanese Focused Value service. Mr. Okumura became a member of the firm in 2007. Prior to joining Pzena Investment Management, he was a sales director at E2open Japan Corporation, a business-to-business software venture jointly established by 10 high tech companies including IBM, Hitachi, Matsushita, and Toshiba. Prior to that, he was a sales specialist at IBM Japan responsible for business development of emerging business, and a sales representative with Daitokyo Fire & Marine Insurance. He earned a B.A. in Commerce from Waseda University, Tokyo, Japan and an M.B.A. from Columbia Business School.

### Lawrence Paustian, CFA

Research Analyst. Mr. Paustian became a member of the firm in 2019. Prior to joining Pzena Investment Management, Mr. Paustian was a managing partner at Crown Venture Management, a value-based equity hedge fund, and an officer in the U.S. Army. He earned a B.S. in Economics from the United States Military Academy and an M.B.A. from the Wharton School of the University of Pennsylvania. Mr. Paustian holds the Chartered Financial Analyst designation.

### John Picasso

Senior Research Analyst. Mr. Picasso became a member of the firm in 2016. Prior to joining Pzena Investment Management, Mr. Picasso was a research analyst at Kavi Asset Management and a senior vice president at Fifth Street Asset Management. He earned a B.A. cum laude in Biology, a B.S. cum laude in Economics, and an M.B.A. with Palmer Scholar distinction, all from the University of Pennsylvania.

### Richard S. Pzena

Founder, Managing Principal, Co-Chief Investment Officer, Portfolio Manager, and member of the firm's Executive Committee. Mr. Pzena is the architect of the firm's investment strategy and conceived and developed our proprietary screening model. He serves as co-portfolio manager for the U.S. Large Cap and Mid Cap strategies, Focused Value, and U.S. Best Ideas. Mr. Pzena began the firm in 1995. Prior to forming Pzena Investment Management, Mr. Pzena was the Director of U.S. Equity Investments and Chief Research Officer for Sanford C. Bernstein & Company. He joined Bernstein as an oil industry analyst and was named to the Institutional Investor All America Research Team for three years running. Mr. Pzena also served as Chief Investment Officer, Small Cap Equities. Prior to joining Bernstein, Mr. Pzena worked for the Amoco Corporation in various financial and planning roles. He earned a B.S. summa cum laude and an M.B.A. from the Wharton School of the University of Pennsylvania.

### Matthew J. Ring

Principal and Portfolio Manager. Mr. Ring is a co-portfolio manager for the International Small Cap Focused Value service. Mr. Ring became a member of the firm in 2010. Prior to joining Pzena Investment Management, he was a senior manager with consulting firm Simat Helliesen & Eichner, providing due diligence for investments in the Industrials and Aerospace & Defense sectors. Mr. Ring began his career with General Electric Aircraft Engines as a design engineer and holds a patent on his GENx compressor case design for the Boeing 787. He earned a B.S. magna cum laude in Aerospace Engineering from the University of Notre Dame, a Masters in Mechanical Engineering from The Ohio State University, and an M.B.A. from Columbia Business School, graduating with honors.

### Rachel Segal

ESG Research Analyst. Ms. Segal became a member of the firm in 2019. Prior to joining Pzena Investment Management, Ms. Segal was a Senior Associate in ESG at BNY Mellon. Prior to that, Rachel worked as a sustainability consultant for both PwC and Kantar Consulting. Ms. Segal graduated with a B.A. from Cambridge University and an M.A. from The Johns Hopkins School of Advanced International Studies (SAIS).



## Investment Management Team

### **Brett Sharoni**

Research Analyst. Mr. Sharoni became a member of the firm in 2019. Prior to joining Pzena Investment Management, Mr. Sharoni was an associate at American Securities, a middle market private equity firm, and analyst at Citadel and Brenner West Capital Partners. He earned a B.A. in Economics from Johns Hopkins University and an M.B.A. from Harvard Business School.

### **Benjamin S. Silver, CFA, CPA**

Principal and Portfolio Manager. Mr. Silver serves as co-portfolio manager for the U.S. Mid Cap, Large Cap, and Global strategies, along with the Focused Value and Small Cap Focused Value services. Mr. Silver became a member of the firm in 2001. Prior to joining Pzena Investment Management, Mr. Silver was a research analyst at Levitas & Company, a value-based equity hedge fund, and a manager for Ernst & Young LLP in their Financial Services Group. He earned a B.S. magna cum laude in Accounting from Sy Syms School of Business at Yeshiva University. Mr. Silver is a Certified Public Accountant and holds the Chartered Financial Analyst designation.

### **Clarke M. Smith**

Research Analyst. Mr. Smith became a member of the firm in 2017. Prior to joining Pzena Investment Management, Mr. Smith was a senior analyst at Eachwin Capital, a concentrated long-term US equities fund. He began his finance career at Barclays Capital as a credit analyst in long-short proprietary trading. Mr. Smith graduated summa cum laude with a B.A. in Classics from Princeton University and was inducted into the Phi Beta Kappa Society. He earned his M.B.A. from the Stanford Graduate School of Business.

### **Akhil Subramanian**

Research Analyst. Mr. Subramanian became a member of the firm in 2017. Prior to joining Pzena Investment Management, Mr. Subramanian was an analyst at SLS Capital, a concentrated long/short equities fund. Prior to that, Mr. Subramanian worked at TGG Group as a senior consultant and Credit Suisse as an investment banking analyst. Mr. Subramanian graduated with a B.S. in Mathematics and a B.A. in Economics from the University of Chicago, and an M.B.A. from Columbia Business School.

### **Manoj Tandon**

Principal, Director of Research, and Portfolio Manager. Mr. Tandon serves as co-portfolio manager for the Focused Value, Long/Short Value and U.S. Best Ideas strategies. Mr. Tandon became a member of the firm in 2002. Prior to joining Pzena Investment Management, Mr. Tandon was an associate analyst for Global Software and IT Services Strategy at Deutsche Bank and a member of its Enterprise Software Research team. Previously, Mr. Tandon worked as a senior research engineer at Exxon Chemical Company and as a research associate at West Virginia University. He earned a Bachelor of Technology in Chemical Engineering from Indian Institute of Technology, New Delhi, India, a Ph.D. in Chemical Engineering from the University of Virginia, and an M.B.A. from New York University.

### **Miklos C. Vasarhelyi**

Principal and Portfolio Manager. Mr. Vasarhelyi is a co-portfolio manager for the European strategy. Mr. Vasarhelyi became a member of the firm in 2012. Prior to joining Pzena Investment Management, he worked at Sanford C. Bernstein as a senior research associate covering U.S. large cap banks, and a research analyst at Banc of America Securities covering the Specialty Finance sector. He earned a B.A. in East Asian Languages and Cultures from Columbia College, where he served as President of the Student Body, and an M.B.A. with Dean's Honors and Distinction from Columbia Business School.

### **Kavitha Venkatraman**

Research Analyst. Ms. Venkatraman became a member of the firm in 2016. Prior to joining Pzena Investment Management, Ms. Venkatraman was an investment analyst at Steinberg Asset Management, investing in U.S. equities, and at DSP BlackRock Investment Managers, investing in Indian equities. She earned a B.S. in Computer Science from University of Madras in India, and an M.B.A. from the Wharton School of the University of Pennsylvania.

### **Yinan Zhao, CFA**

Senior Research Analyst. Mr. Zhao became a member of the firm in 2016. Mr. Zhao joined Pzena Investment Management upon graduating with an M.B.A. from Columbia Business School, where he was enrolled in the Value Investing Program. Prior to business school, Mr. Zhao worked at Susquehanna International Group as a senior research associate and began his career as a research analyst at Merrill Lynch. He earned a B.S. in Electrical Engineering from Stanford University and holds the Chartered Financial Analyst designation.



## GIPS Compliant Presentation

Pzena Investment Management, LLC  
 Schedule of Investment Performance  
 Pzena Emerging Markets Select Value Composite

Year Ended Dec 31	Rate of Return (Gross)	Benchmark Return	Number of Portfolios	Composite Assets at End of Period (US\$ millions)	Total Firm Assets at End of Period (US\$ millions)	Total Product Managed		Composite Assets as a Percentage of Product		High <sup>(b)</sup>	Low <sup>(b)</sup>	Composite 3-yr Annualized Standard Deviation	Benchmark 3-yr Annualized Standard Deviation	
						Assets <sup>(a)</sup> at End of Period (US\$ millions)	Composite Assets as a Percentage of Firm Assets	Composite Assets as a Percentage of Product Managed Assets <sup>(a)</sup>						
2018	-9.0%	-14.6%	2	136	32,198	336	Less Than 1%	40.3%	N/A	N/A	N/A	N/A	14.5%	14.6%
2017	33.3%	37.3%	2	604	37,690	801	1.6%	75.4%	33.3%	33.2%	N/A	N/A	N/A	N/A
2016	21.8%	11.2%	2	440	30,035	440	1.5%	100.0%	N/A	N/A	N/A	N/A	N/A	N/A
<b>3-yr Annualized</b>	<b>13.9%</b>	<b>9.3%</b>												
2015 (c)	-7.7%	-6.0%	1	161	25,999	161	Less Than 1%	100.0%	N/A	N/A	N/A	N/A	N/A	N/A

(a) Product Managed Assets information is included as supplemental information. See Notes to Performance.

(b) High and Low performance for the Composite is presented when two or more accounts were active for the entire year.

(c) Composite created in November 2015 with inception date of 11/1/2015. Performance represents partial year 2015.

Past performance is not indicative of future returns.



## Notes to Performance

Pzena Investment Management, LLC (the "Firm") claims compliance with the Global Investment Performance Standards ("GIPS®") and has prepared and presented this report in compliance with the GIPS standards. Pzena Investment Management, LLC has been independently verified for the periods January 1, 1996 to December 31, 2018. 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. The verification and performance examination reports are available upon request. The Firm commenced operations on January 1, 1996. The Firm is a registered investment adviser that follows a classic value investment approach and is the operating company of Pzena Investment Management, Inc. Pzena Investment Management, Inc. is a publicly traded company whose shares are listed on the New York Stock Exchange under the ticker symbol "PZN."

The Pzena Emerging Markets Select Value Composite (the "Composite") was created in November 2015. The Composite represents returns for clients invested in the Pzena Emerging Markets Select Value strategy. Pzena Emerging Markets Select Value is a portfolio generally consisting of 30-60 stocks generally taken from the largest 1,000 companies in the non-developed markets at the time of initial purchase. The presentation of investment performance sets forth the time-weighted rates of return (the "Return") for the Composite. Past performance is not an indication of future results and may differ for future time periods.

The Composite includes all fee-paying and non wrap fee portfolios since inception date that are managed on a fully discretionary basis by the Firm, according to the Pzena Emerging Markets Select Value strategy. Eligible new portfolios are added to the Composite at the beginning of the first full month under management. Terminated portfolios are removed from the Composite after the last full month that the portfolio is under firm management. FX currency transactions were used to transact in equity securities only, where applicable.

The Total Product Managed Assets represents the total value of all accounts invested in the Pzena Emerging Markets Select Value strategy managed and traded by the Firm, including accounts with client-imposed restrictions or accounts not fully invested at year-end.

Generally, securities listed on any national securities exchange are valued at the last quoted sale price on the exchange. For securities that have not recently traded, an estimate of current price is used to value the security. Securities which are not listed are valued at the most recent publicly quoted bid price. Securities transactions are recorded on a trade date basis. Dividend income is recorded as of the ex-dividend date. The results for the Composite for all periods shown are net of withholding taxes, where applicable, on dividends, interest, and capital gains. The withholding tax rates used in the return calculations are the actual withholding tax rates of each country in which an investment was made or held during the period of such calculation.

The rate of return is calculated on a time-weighted, total return basis and includes all dividends, interest, accrued income and realized and unrealized gains or losses. Returns are calculated in U.S. dollars ("USD").

Gross rates of return are presented gross of investment management fees and net of the deduction of brokerage commissions and transaction costs. Net rates of return are presented net of investment management fees and net of the deduction of brokerage commissions and transaction costs. An investor's actual return will be reduced by investment management fees.

Generally, investment management fees are charged based upon the size of the portfolio, and are applied quarterly. The Firm's standard annual asset-based fee schedule is as follows: 0.70% per annum on the first \$50 million and 0.55% per annum on assets above \$50 million. Generally fees are not negotiable. However, over time the standard fees have evolved and changed. The fees may vary depending on the date the account is opened or on an account's particular requirements. To illustrate the compounded effect of the deduction of a 1% annual fee on a hypothetical investment of \$1,000 in an account where the average annual return before fees was 10% for a 10-year period, and assuming reinvestment of all dividends and interest, the initial investment would have grown to \$1,100 after one year before fees and \$1,089 after fees; to \$1,611 after five years before fees and \$1,532 after fees; and to \$2,594 at the end of ten years before fees and \$2,346 after fees. Further discussion regarding our advisory fees is contained in our Form ADV Part 2.



## Notes to Performance

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Composite returns are benchmarked to the MSCI Emerging Markets Index (the "Index"). The benchmark is used for comparative purposes only and generally reflects the risk or investment style of the investments reported on the schedule of investment performance. The MSCI Emerging Markets Index is a free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets, and provides equity returns including dividends net of withholding tax rates as calculated by MSCI. The Index cannot be invested in directly. Investments made by the Firm for the portfolios it manages in the Pzena Emerging Markets Select Value Composite may differ from those of the MSCI Emerging Markets Index. Accordingly, investment results will differ from those of the benchmark.

The standard deviation of comparable performance over time is a measure of volatility. The three-year annualized standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The Firm also presents the returns for the highest and lowest yielding portfolios in the Composite. High and Low performance for the Composite is only presented when two or more accounts were active for the entire year. Additional information is available upon request regarding policies for valuing portfolios, calculating performance, and preparing compliant presentations, as well as a list of composite descriptions.

Past performance is no guarantee of future results, and the past performance of Pzena Emerging Markets Select Value composite should not be considered indicative of the future performance of any accounts or commingled funds managed by the Firm. Investment return and principal value of an investment will fluctuate over time. Additionally, there are special risks associated with investing in foreign securities which may affect performance. For example, the value of foreign currencies may decline relative to the U.S. dollar, or political, social or economic instability in a foreign country in which a client invests may cause the value of the client's investments to decline.

The Firm is the owner of all other copyrights relating to the material presented herein, except as otherwise noted. This report contains proprietary and confidential material of the Firm and others. Any unauthorized use, misuse, disclosure, duplication or redistribution of such items or information is strictly prohibited.



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Notable portfolio holdings are discussed for illustrative purposes only. The specific portfolio securities discussed in this presentation were selected for inclusion based on their ability to help you better understand our investment process and, where applicable, the investment model for our particular product strategy in which you are invested. They were selected from securities in one or more of our strategies, and were not selected based on performance. They do not represent all of the securities purchased or sold for our client accounts during any particular period, and it should not be assumed that investments in such securities were or will be profitable.

Holdings vary among client accounts as a result of different product strategies having been selected thereby. Holdings also may vary among client accounts as a result of opening dates, cash flows, tax strategies, etc. There is no assurance that any securities discussed herein remain in client portfolios at the time you receive this presentation booklet or that securities sold have not been repurchased. The S&P 500® is a registered trademark of Standard & Poor's, a division of S&P Global Inc., which is the owner of all copyrights relating to this index and the source of the performance statistics of this index that are referred to herein.

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# Next Century Growth Investors, LLC

Investing Today in Tomorrow's Big Companies

Micro Cap Growth

August 27, 2019

## Kentucky Retirement Systems



## Firm Overview

*As of July 31, 2019*

- NCG founded in November 1998 and headquartered in Minneapolis
- Over 85 years of combined investment experience
- Disciplined investment strategy
- Focused on portfolio management
- No portfolio manager turnover

# Products

*As of July 31, 2019*

<b>Portfolio</b>	<b>Assets</b>	<b>Status</b>
Small Cap	\$453 million	Open
SMID Cap	\$16 million	Open
Micro Cap	\$226 million	Open
Large Cap	\$100 million	Open
Small/Micro Cap	\$25 million	Open

# Investment Team

*As of July 31, 2019*

<b>NCG Team</b>	<b>Position</b>	<b>Investment Industry Experience</b>
Thomas L. Press	NCG Chairman, Chief Executive Officer, Portfolio Manager	35 years
Robert E. Scott	President, Chief Operating Officer, Portfolio Manager	25 years
Kaj Doerring	Portfolio Manager	21 years
Peter M. Capouch	Portfolio Manager	16 years
Tom Dignard	Portfolio Manager	6 years

# Investment Philosophy

We seek to invest in the highest quality and fastest growing companies in America. We believe a portfolio of high growth companies, combined with a strong sell discipline, will lead to a compounding of portfolio value over time.

# Investment Philosophy

- Small team of portfolio managers performing direct research
- Work on the Law of Compounding
- Strong sell discipline allows us to admit mistakes quickly

# Investment Philosophy



# Investment Process



# Investment Process



## Sell Discipline



*^We manage the weighted average market cap of the product to be within 150% of the Russell Microcap Growth Index.*

## Risk Management

- Portfolio diversification and an awareness of risk at a company level
- Biggest risk to performance is company specific fundamental disappointment
- Strong sell discipline
- Market cap forced selling creates a sell high mechanism
- Excessive valuation of stock or sector
- Position limits
- Trading liquidity

## Reasons to invest in Micro Cap Growth

- Most inefficient segment of the market
- Fast growth is easier
- Valuation is usually better
- Experienced small cap portfolio managers may be successful in micro cap

## Synergies with Small Cap

- We know the sectors
- We know many of the companies already
- Our small cap investments give us access to management teams & idea sources.
- Small, regional brokerages active in idea generation
- Graduation effect

## Performance – NCG Micro Cap Growth Composite

Periods Ended July 31, 2019

	Year to Date	One Year	Annualized				Since Inception 1/1/2003
			Three Years	Five Years	Ten Years	Fifteen Years	
<b>NCG Micro Cap Growth Composite</b>							
Composite Gross of Fees (%)	29.19	16.50	31.42	21.76	20.42	14.56	17.71
Composite Net of Fees (%)	28.82	15.76	30.55	20.90	19.48	13.63	16.67
Russell Microcap Growth Index (%)	13.64	-11.95	7.01	5.69	10.61	6.55	8.67

*Past performance is not an indicator of future performance and the value of your account may increase or decrease over time.*

*The performance information provided above includes the reinvestment of all dividends and other earnings but does not reflect the deduction of investment advisory fees. The investment return would be reduced by these investment advisory fees and other expenses that clients may incur. For example, an annual gross investment return of 20%, subject to an annual investment advisory fee of 1.00% of assets under management, would result in an annual net investment return over 1 year of 18.8%. Next Century Growth Investors' investment advisory fees are described in Part 2a of its Form ADV.*

*The Next Century Growth Investors Micro Cap Growth Composite contains portfolios investing primarily in the equity securities of small U.S. companies ((primarily with a market cap \$100 million-\$1 billion at the time of purchase) that the portfolio managers believe have substantial potential for high long-term growth. The portfolio manager seeks to identify the fastest growing and highest quality companies for investment. Investment results are measured versus the Russell Microcap Growth Index.*

*The Russell Microcap® Growth Index measures the performance of those Russell Microcap companies with higher price-to-book ratios and higher forecasted growth values. The Russell Microcap Growth Index is not an actual investment and does not reflect the deduction of transaction charges and other expenses that your account must bear. The Russell 2000 Growth Index measures performance of the companies within the Russell 2000 Index (the 2,000 smallest of the 3,000 largest U.S. companies based on total market capitalization) with relatively higher price-to-book ratios and higher forecasted growth values. The Russell 2000 Growth Index is not an actual investment and does not reflect the deduction of transaction charges and other expenses that your account must bear.*

*Additional information regarding policies for calculating and reporting returns is available upon request*

*Micro Cap Growth Composite assets represent 24.48% of total firm assets as of 07/31/2019. Source of Indices: ICE Data Pricing*

*Information is shown in conjunction with the GIPS compliant presentation included at the end of this presentation.*

**Next Century Growth Investors, LLC**

# Portfolio Holdings

As of July 31, 2019



*Portfolio holdings are based on a representative account, will change over time, and may vary from account to account based on client restrictions. Information is shown as supplemental information to the GIPS compliant presentation at the end of this presentation.*

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**Next Century Growth Investors, LLC**

## NCG's Portfolios Confirm Our Disciplined Investment Process

As of July 31, 2019

### Fundamentals

Growth	Micro Cap Growth	Russell Microcap Growth Index
Est. Sales Growth (3-5 Year) <sup>^</sup>	23%	18%
Est. EPS Growth (3-5 Year)	20%	18%

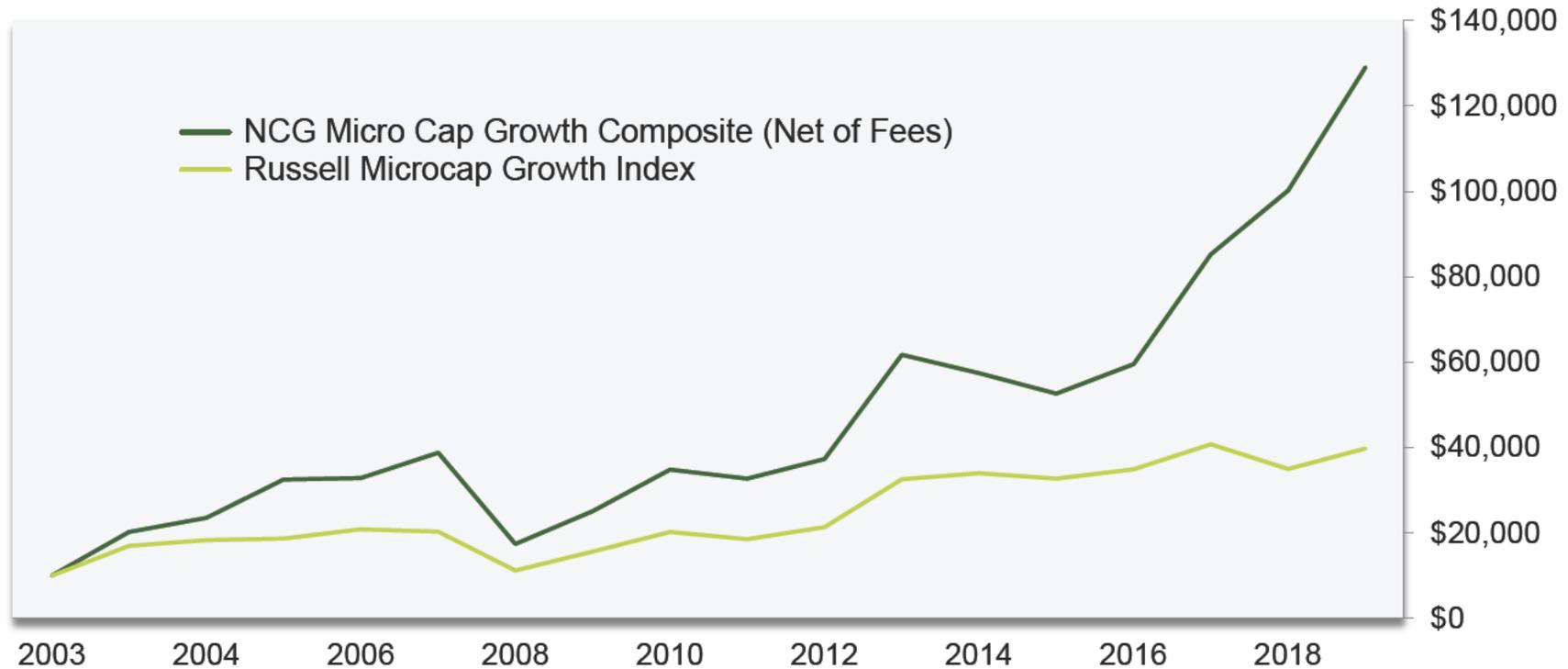
<sup>^</sup>Securities excluded with less than \$25 million revenue (2019 mean)

Portfolio characteristics are based on representative account and are calculated using weighted average Source: FactSet

## Reasons to Hire

- More than 16 years successfully investing in micro cap growth space
- Extensive small cap experience
- Disciplined, consistent investment process
- Portfolio managers own the firm
- No portfolio management turnover

## Compound Annual Growth of \$10,000 Investment



Results Displayed in US Dollar. Source: Axys 1/1/2003-07/31/2019. This graph is for illustrative purposes only. Information for Micro Cap Growth based on composite returns calculated net of fees. Performance does not represent actual client accounts. Past performance is not an indicator of future performance and the value of your account may increase or decrease over time.

The Russell Microcap® Growth Index measures the performance of those Russell Microcap companies with higher price-to-book ratios and higher forecasted growth values. The Russell Microcap Growth Index is not an actual investment and does not reflect the deduction of transaction charges and other expenses that your account must bear.

The NCG Micro Cap Growth Equity Composite contains portfolios investing primarily in the equity securities of smaller U.S. companies that the portfolio manager believes have substantial potential for high long-term growth. The portfolio manager seeks to identify the fastest growing and highest quality companies for investment. Investment results are measured versus the Russell Microcap Growth Index.

# Biographies

*As of July 31, 2019*

## **Thomas Press, CFA, Chairman and Chief Executive Officer**

Tom founded NCG in November 1998 with the goal of managing institutional accounts within our growth stock investing philosophy. He is a portfolio manager on all of our strategies, as well as being our Chairman and Chief Executive Officer since inception of the firm. Prior to NCG he worked at Jundt Associates from 1994-1998 as a portfolio manager, and before that he worked at Investment Advisors from 1992-1993. From 1985-1992 he worked Salomon Brothers and Morgan Stanley & Company on the institutional sales desk. Of his 35 years of investment experience, the past 28 have been spent utilizing our current investment process. Tom holds a B.A. degree in business administration from the University of Minnesota and an M.B.A. degree from the University of St. Thomas. He was a former member of the U.S. World, World Cup, and Olympic Wrestling Teams (alternate and team leader) and is a member of the Minnesota Wrestling Coaches Association Hall of Fame.

## **Robert Scott, CFA, President, Chief Operating Officer, Portfolio Manager**

Bob joined NCG in our second year, serving as a portfolio manager on all strategies. In 2003, he helped create our microcap strategy and has been a portfolio manager on that product ever since. He also serves as the firm's President. Prior to joining NCG in September 2000, Bob spent seven years at Investment Advisers, Inc (IAI). While at IAI, Bob held various positions including Vice President and portfolio manager for the IAI small cap growth and mid cap growth products. From July 1991 to July 1993 he was a research analyst with the American Embassy in Tokyo, Japan. He has 25 years of investment experience. Bob graduated from Harvard University in 1990.

## **Peter Capouch, CFA, Portfolio Manager**

Peter has been with NCG for 16 years and has 17 years of investment experience. He has been involved in all aspects of the portfolio management process since joining the firm in July 2003. Prior to joining NCG, he worked at State Street Global Advisors as a consultant analyst developing and maintaining relationships with investment consultant companies. Peter graduated from Harvard University in 2002, where he was captain of the men's ice hockey team.

## Biographies

### **Kaj Doerring, Portfolio Manager**

Kaj Doerring has 21 years of investment experience. This includes 3 years at Piper Jaffray Companies and 3 years as a founding member of Think Equity Partners. Before entering the investment industry, Kaj spent 14 years at various positions within drug, diagnostic, device and capital equipment sales/marketing areas including 9 years at Bristol-Myers Squibb, 2 Years at Boehringer Mannheim Diagnostics and 3 years at Coherent Surgical. Kaj graduated from Concordia College, Moorhead, MN in 1985 with a BA in Computer Science.

### **Tom Dignard, CFA, Portfolio Manager**

Tom joined NCG in January 2013. Tom earned his BA in economics from Yale University in 2010, where he was also a 4-year letterman of the Men's Ice Hockey Team. He earned his MBA and graduated with Distinction from the University of Ulster in 2012.

### **Kelly McNulty, Vice President, Chief Compliance Officer, Chief Financial Officer**

Kelly has over 26 years of industry experience. Prior to joining NCG in April 2002, she spent 7 years with Paladin Investments (formerly Investment Advisers, Inc.) as Associate Vice President of Operations overseeing institutional accounts and mutual funds. Previous to Paladin, Kelly held various positions at Piper Jaffray. Kelly received her MBA in Finance in May 2002 from the University of St. Thomas and she received her BA in Accounting and Finance from Creighton University in 1992.

## Next Century Growth Investors, LLC

This presentation is intended only for sophisticated clients. Next Century Growth Investors, LLC (NCG) and its affiliates may have positions in, and may affect transactions in, the markets, contracts and related investments described herein. Past performance is not indicative of future results. The investment process and limitations described in this presentation are intended as an illustration of the manager's general investment philosophy. Any client-specific investment guidelines or restrictions must be detailed in a written agreement between NCG and the client.

# Separately Managed Accounts

## Micro Cap Growth Investment Management



**Next Century Growth Investors, LLC**  
**Micro Cap Growth Composite**  
**January 1, 2003 through December 31, 2018**

Year	Gross-of-Fees Return	Net-of-Fees Return	Russell Microcap Growth Index	Russell 2000 Growth Index	Standard Deviation	Number of Portfolios	Composite Assets (\$ Millions)	Percentage Off Firm Assets	Firm Assets (\$ Millions)	Composite	Annualized	
	(percent)	(percent)	(percent)	(percent)				Assets	( \$ Millions)		3-Year Russell Microcap Growth Index	Standard Deviation Russell 2000 Growth Index
2003	105.56	101.99	69.83	48.54	-	2	15	0.96	1,551	**	**	**
2004	17.60	16.62	7.90	14.30	0.12	2	5	0.27	1,734	**	**	**
2005	39.67	38.06	2.04	4.15	0.01	5	40	2.36	1,705	21.1%	18.1%	16.5%
2006	1.81	1.10	11.38	13.34	0.63	10	155	7.01	2,203	20.5%	16.7%	15.6%
2007	18.89	18.00	(2.67)	7.04	0.10	10	355	12.07	2,937	18.4%	14.8%	14.2%
2008	(54.59)	(55.07)	(44.64)	(38.53)	0.44	13	171	11.21	1,521	26.3%	21.7%	21.3%
2009	45.40	43.99	39.17	34.46	0.54	12	233	9.51	2,446	26.5%	26.2%	24.8%
2010	39.82	38.73	29.48	29.08	0.27	12	321	10.35	3,100	31.4%	29.1%	27.7%
2011	(5.20)	(6.09)	(8.42)	(2.90)	0.31	11	230	9.60	2,604	27.2%	25.2%	24.3%
2012	15.08	14.03	15.17	14.58	0.33	11	316	11.75	2,690	26.8%	21.6%	20.7%
2013	66.85	65.52	52.83	43.30	0.30	7	441	11.43	3,860	22.2%	18.5%	17.3%
2014	(6.17)	(6.94)	4.29	5.60	0.15	6	296	9.34	3,163	19.0%	16.5%	13.8%
2015	(7.64)	(8.36)	(3.85)	(1.38)	0.06	5	188	7.35	2,555	18.7%	17.6%	14.9%
2016	13.93	13.12	6.86	11.31	0.14	5	194	11.19	1,736	19.2%	19.4%	16.7%
2017	44.17	43.16	16.65	22.16	0.01	3	159	19.01	834	16.0%	17.0%	14.6%
2018	18.25	17.47	(14.18)	(9.30)	0.03	3	169	24.24	699	17.7%	18.5%	16.5%

**Compliance Statement**

Next Century Growth Investors, LLC claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Next Century Growth Investors, LLC has been independently verified for the periods 1999-2018. The verification reports are 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.

**Definition of the Firm**

Next Century Growth Investors, LLC is a registered investment adviser with the U.S. Securities and Exchange Commission under the Investment Advisers Act of 1940. The Firm offers investment services to individuals and institutional investors. Next Century Growth is located in Minneapolis, Minnesota, has one office and no subsidiaries.

**List of Composites**

This composite was created January 1, 2003. The firm's list of composite descriptions is available upon request.

**Formal Description of the Micro Cap Growth Composite**

The NCG Micro Capitalization Growth Equity Composite contains all fee paying portfolios investing primarily in the equity securities of smaller U.S. companies that the portfolio manager believes have substantial potential for high long-term growth. The portfolio manager seeks to identify the fastest growing and highest quality companies for investment. Investment results are measured versus the Russell Microcap Growth Index and the Russell 2000 Growth Index. Prior to October 1, 2018 the Micro cap Growth composite had been referred to as Poling Composite, MicroCap Composite, and SmallCap Composite, and Small Cap Ultra Composite. Beginning January 1, 2003, there was no minimum account size for the composite, Beginning October 1, 2010 the minimum account size for the composite is \$10,000.

**Currency**

Valuations are computed and performance reported in United States dollar (\$).

**Benchmark**

The benchmark for the Micro Cap Growth Equity Composite is the Russell Microcap® Growth Index. The Russell Microcap® Growth Index measures the performance of those Russell Microcap companies with higher price-to-book ratios and higher forecasted growth values. Prior to January 2008, the firm used the Russell 2000 Growth Index. The Russell 2000 Growth Index measures performance of the companies within the Russell 2000 Index (the 2,000 smallest of the 3,000 largest U.S. companies based on total market capitalization) with relatively higher price-to-book ratios and higher forecasted growth values. The Russell Microcap® Growth Index is not an actual investment and does not reflect the deduction of transaction charges and other expenses that your account must bear.

**Fee Schedule**

Next Century Growth Investors standard investment advisory fee is 1.00% on all asset under management. The net returns reflect the deduction of actual advisory fees. Prior to April 2004, monthly net returns reflect the deduction of a model advisory fee of 1.00%. This fee is the maximum annual advisory fee based upon the accompanying fee schedule in effect during each respective performance period for each portfolio in the composite, for net composite returns. The annual advisory fee is divided by 12 to determine the monthly advisory fee.

**Measure of Dispersion**

The composite dispersion is measured using an asset weighted standard deviation of returns for portfolios that were in the composite for the entire year.

**Significant Cash Flows**

Beginning Jan 1, 2018, composite policy requires the temporary removal of any portfolio incurring a client initiated significant cash inflow or outflow of at least 35% of portfolio assets. The temporary removal of such an account occurs at the beginning of the month in which the significant cash flow occurs and the account re-enters the composite at the beginning of the month after the cash flow.

**Additional Information**

Policies for valuing portfolios, calculating performance and preparing compliant presentations is available upon request. Past performance is not an indicator of future performance and the value of your account may increase or decrease over time. The performance information provided above includes the reinvestment of all dividends and other earnings. Additional information about NCG is contained in the firm's Form ADV. NCG will supply a copy of its Form ADV to any prospective client upon request.

\*\* for periods with less than 3 years of composite performance, no 3-year ex-post standard deviation measurement is available.



# Kentucky Retirement Systems



## Strategic Partnership Initiative

Andy Kiehl – Deputy Executive Director



## Modeled on Barings Real Estate / Mass Mutual transaction

### Insurance Companies offer strong value-proposition

- Very large pools of assets with long term horizon
- Active asset management
  - ✓ General account teams of specialists
- Different philosophy / incentive / comp structures than asset managers

### Efficient Investing with best Alignment of Interest

- KRS is “important” capital
  - ✓ Not just another LP allocation in giant fund
- Fewer, larger, more diverse partnerships
- Invest alongside meaningful Parent Co / General Account capital
  - ✓ Not minimal GP commitment



# Modeled on Barings Real Estate / Mass Mutual transaction

## Benefits to KRS

- Alignment of Interest
- Economies of Scale
- Customized agreements - More favorable LP / Partner terms
- Lower fees / Incentive comp
- Leverage investment expertise / staff / resources - Access

## Target

- 3 – 5 Partnerships
- Primarily alternatives – Real Assets / Real Return
  - Look for traditional asset class strengths to incorporate



**KENTUCKY RETIREMENT SYSTEMS**  
INVESTMENTS



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To: Investment Committee – Kentucky Retirement Systems  
From: Anthony Chiu, Director  
Date: August 27, 2019  
Subject: Investment Recommendation – CapitalSpring separately managed account

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KRS staff and Wilshire are proposing a commitment to CapitalSpring, a specialist investor in the franchised and branded restaurant sector. CapitalSpring’s team has differentiated experience with franchise businesses that predates the 2008 financial crisis – as well as a dedicated focus on restaurants resulting from prior realized losses in franchised concepts from other industries. Subject to KRS Investment Committee approval, KRS will commit to a \$200 million separately managed account that will invest parallel to the CapitalSpring Adjacent Investment Partners (“Adjacent”) fund.

The Adjacent fund is a first lien debt-focused fund that will also have exposure to some overflow deals from the flagship CapitalSpring strategy. The flagship strategy also exclusively invests in branded and franchise restaurants, but targets higher returns from providing unitranche and equity financing.

**Business / People:**

CapitalSpring was formed in 2005 by Richard Fitzgerald and Chris Unrath in New York City. The firm started with friends and family capital, secured SBIC financing, and eventually raised a \$256MM fund in 2013 (Fund IV) for their current strategy that focuses exclusively on restaurants. CapitalSpring closed a \$725MM fund in 2016 (Fund V) and has recently begun raising Fund VI with a target size of \$750MM.

The team has 28 employees, including 16 investment professionals. Nashville recently became the primary office, and the firm has additional presence in Los Angeles, Atlanta, Dallas, and New York.

While it was being established in the mid-2000s, CapitalSpring sold minority ownership stakes to outside investors. Subsequently, the firm has undergone several recapitalizations, including a recent one that has simplified ownership to three groups: CapitalSpring management, a set of non-management holders, and the Swiss investment firm Partners Group (who is the largest equity shareholder and holds unsecured debt of CapitalSpring as well).

Among CapitalSpring management, managing partner Richard Fitzgerald holds the majority of economic ownership. Carried interest has been allocated to most of the investment team (through the VP level), as well as the two operators and some senior non-investment professionals.

**Investment Process and Portfolio:**

CapitalSpring’s flagship strategy targets a minimum of 10% unlevered return. However, after reverse inquiry and an analysis of their pipeline, CapitalSpring realized there was a significant amount of deals with slightly lower projected returns (7-9% unlevered) but also lower risk resulting from larger and more proven borrowers and brands.

Through its 15 years of experience investing in branded restaurants, the firm has developed a rich sourcing network. Rather than rejecting the sub-10% unlevered deals, CapitalSpring formed a new Adjacent fund that could utilize its existing investment process - along with modest leverage (< 1x) - to provide an attractive return with relatively reduced risk.

CapitalSpring's years of focus on branded restaurants has also resulted in a proprietary database of unit-level financials for thousands of stores that they have diligenced. The firm gets a full trial balance from prospective investees, which they distill into a consistent format with around 20 key line items for each unit. The investment team then does a financial underwriting, which is enhanced by operational due diligence from its two full-time operators. This can entail mystery shopping, drive thru timing, and talking to community members to reference franchise operators, among other assessments.

CapitalSpring's two operators each have significant restaurant experience that they bring to both CapitalSpring's due diligence and portfolio company management. Managing Director Jim Balis joined in 2014 and has been the CEO or Chief Restructuring Officer of 15 restaurant companies. Principal Chad Cohen joined in 2010 and was previously in management roles at Blockhead Burritos and Hale and Hearty Soups as well as a multi-unit Subway franchisee. Given the firm's growth, it may hire an additional operator in the next 12-18 months.

The Adjacent fund has closed 6 deals so far in 2019 and features several attractive debt and equity investments that KRS would gain exposure to, including sizable and growing franchisees in the Panera (134 units), McDonald's (26 units), Yum! Brands (146 units), and Wingstop (47 units) systems.

The restaurant sector is often perceived as a risky one, in part due to industry oversupply, sensitivity to economic cycles, and the availability heuristic of local and national restaurant concept failures. The Adjacent fund plans to mitigate some of these risks by targeting larger borrowers within established quick service and fast casual restaurant concepts that service daily recurring meal demand (rather than treats or other seasonal businesses). Instead of competing for the commoditized, inexpensive bank financing that larger franchisees can typically access, CapitalSpring looks to offer more flexibility and leverage (if warranted) to meet borrower needs. These can include tax considerations or financing growth while minimizing equity ownership dilution. In exchange, the Adjacent fund benefits by gaining access to securities that offer an attractive return for a solid credit profile.

**Conclusion:** Staff is recommending an investment of \$200 million in CapitalSpring to be shared between the following plans: KERSH, CERS, CERSH, and all 5 Insurance plans. While this investment is expected to produce income periodically, we do not recommend it for the KERS or SPRS pension plans because of its illiquid nature.

Investment and Terms Summary

**Type of Investment:** Specialty Credit

**Structure:** Separately Managed Account

**Management Fee:** [REDACTED]

**Performance Fee:** [REDACTED]

**Purpose:** Capture the yield resulting from CapitalSpring's sourcing and underwriting of debt for established 20+ unit restaurant franchisees, along with some equity upside from those franchisees' operational improvements and profitability growth.

**Risks:** Leverage, Credit, Liquidity, Concentration, Key Person / Team Turnover

**Exp. Net Return:** 10% - 15%

**Funding Source:** Cash on hand



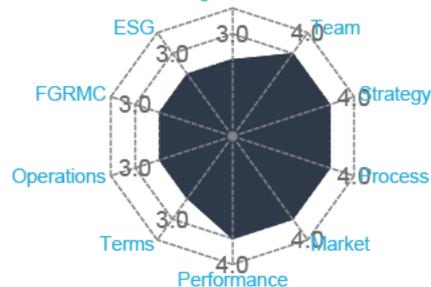
# CAPITALSPRING ADJACENT INVESTMENT PARTNERS (\$200M SMA)

**REQUEST DECISION**

Key Highlights	
Target Size	USD / \$250 million / \$400
First Close (M)	\$60
First Close Date	May 2018
Geographic Focus	North America
Sector	Direct Lending
Investment Focus	Restaurants
Investment Size (M)	\$5 - \$40
Number of Investments	Approx. 20
Investment Period	3 years
Fund Term	5 years
GP Commitment	0.2% of commitments plus 2% co-investment in each deal
Target Return	10% to 16% net IRR
Management Fee – Investment Period	[REDACTED]
Management Fee Structure	Invested Capital
Carry / Waterfall	16-18% <sup>1</sup> / European Style
Catch Up (%) / Hurdle	100% / 7% per annum

<sup>1</sup>Applicable rate dependent on commitment size

## WPM RESEARCH REPORT RADAR Organization



Key: 5 = Top Decile; 4 = Top Quartile; 3 = Average; 2 = Bottom Half; 1 = Bottom Decile; 0 = No Information

### FIRM OVERVIEW

CapitalSpring (the "Firm") was founded in 2005 by Richard Fitzgerald and Chris Unrath, and today is one of the most active institutional lenders focused on the franchised and branded restaurant sector in the U.S. The Firm has 12 investment professionals with restaurant and franchise-specific expertise in the areas of credit, private equity, law, brand management and structuring. The investment team is complemented by two dedicated in-house operations professionals, two origination professionals and a 10-person administration team. CapitalSpring has offices in New York City, Nashville, Los Angeles and Atlanta.

### INVESTMENT STRATEGY

CS Adjacent Investment Partners, LP ("CS Adjacent Fund" or the "Fund") will provide predominantly first-lien and unitranche loans to franchised restaurants, with a particular emphasis on the Quick Service and Fast Casual segments. Franchised restaurant businesses are generally characterized by simple, formulaic and proven business models operating under established and recognized brands. Consequently, the pattern recognition resulting from the Firm's extensive experience in this space enables a repeatable, data-driven approach to analyzing and investing in target businesses with an accuracy and efficiency lacking in generalist firms that consider the franchise sector. The Fund will target a compelling niche within a restaurant sector that is growing, benefits from demographic tailwinds, and has proven remarkably resilient across macroeconomic cycles. Despite these favorable characteristics, however, franchise restaurants remain underbanked and generally out of favor with many investors. By focusing on a sector where capital is scarce, CapitalSpring will benefit from a fundamentally less efficient market which should accrue to the risk-adjusted return potential of the Fund. The Fund will target a net IRR of 10-16% with a cash yield of 8-12%.

### TRACK RECORD

Since 2005, CapitalSpring has completed more than 180 investments totaling \$1.3 billion of invested capital in over 50 restaurant brands. As of June 30, 2018, the Firm has generated an aggregate 13% gross IRR across all investments since inception. The current strategy, which has been in place since 2010, has generated a 15% gross IRR to-date.

Fund	Year	Size (\$M)	Net ROI	Net IRR
Fund III	2009	\$65	1.3x	8%
Fund IV	2013	\$256	1.4x	11%
Fund V	2016	\$725	1.1x	8%

*Source: CapitalSpring as of June 30, 2018.*

Investment Merits	Investment Concerns
<ul style="list-style-type: none"> <li>Large team with extensive, relevant industry experience</li> <li>Specialized strategy focused on compelling, niche, fundamentally less efficient market</li> <li>Unusually high degree of operational engagement during due diligence and post-investment value creation</li> </ul>	<ul style="list-style-type: none"> <li>Firm capital structure includes significant third-party equity ownership and meaningful balance sheet leverage</li> <li>Substantial third-party ownership means there is substantial carry allocation to external parties</li> <li>The use of leverage introduces marginal risk to the Fund and potentially impacts the Fund's risk-return profile relative to the Firm's main strategy</li> </ul>

**FOIA Confidential Treatment Requested**



***Presentation to Kentucky Retirement System  
August 27, 2019***

*Confidential- Not for distribution, in whole or in part, without the express consent of CapitalSpring. Information as of March 31, 2019, unless otherwise noted. Performance information set forth herein is intended solely to provide investors with information about CapitalSpring's prior investments. It should not be assumed that investments made in the future will be profitable or will equal the performance of the investments in this document. PAST PERFORMANCE IS NOT INDICATIVE, NOR A GUARANTEE, OF FUTURE RESULTS.*

# CapitalSpring Overview

## FOIA Confidential Treatment Requested

### CapitalSpring Overview

- Founded in 2005; leading alternative investor focused on the franchised and branded restaurant industry
- 28 employees, including 16 investment professionals (Primary offices: Nashville, Los Angeles, New York & Atlanta)
- \$1.5 billion invested across more than 180 investments in over 60 restaurant brands

### Flagship Investment Strategy

- Senior secured debt, mezzanine capital, and opportunistic equity to support proven management teams

- [REDACTED]

### Competitive Advantage

- Unparalleled industry expertise and 14-year foundation of relationships drive non-competitive deal flow

- [REDACTED]
- [REDACTED]

### Compelling Market Dynamic

- Limited service restaurant sector demonstrated relative/absolute stability in past recessions = Low Correlation

- [REDACTED]

(1) For further information regarding CapitalSpring's ESG's initiatives, see "Addendum: Important Notes" on pages 21-24.

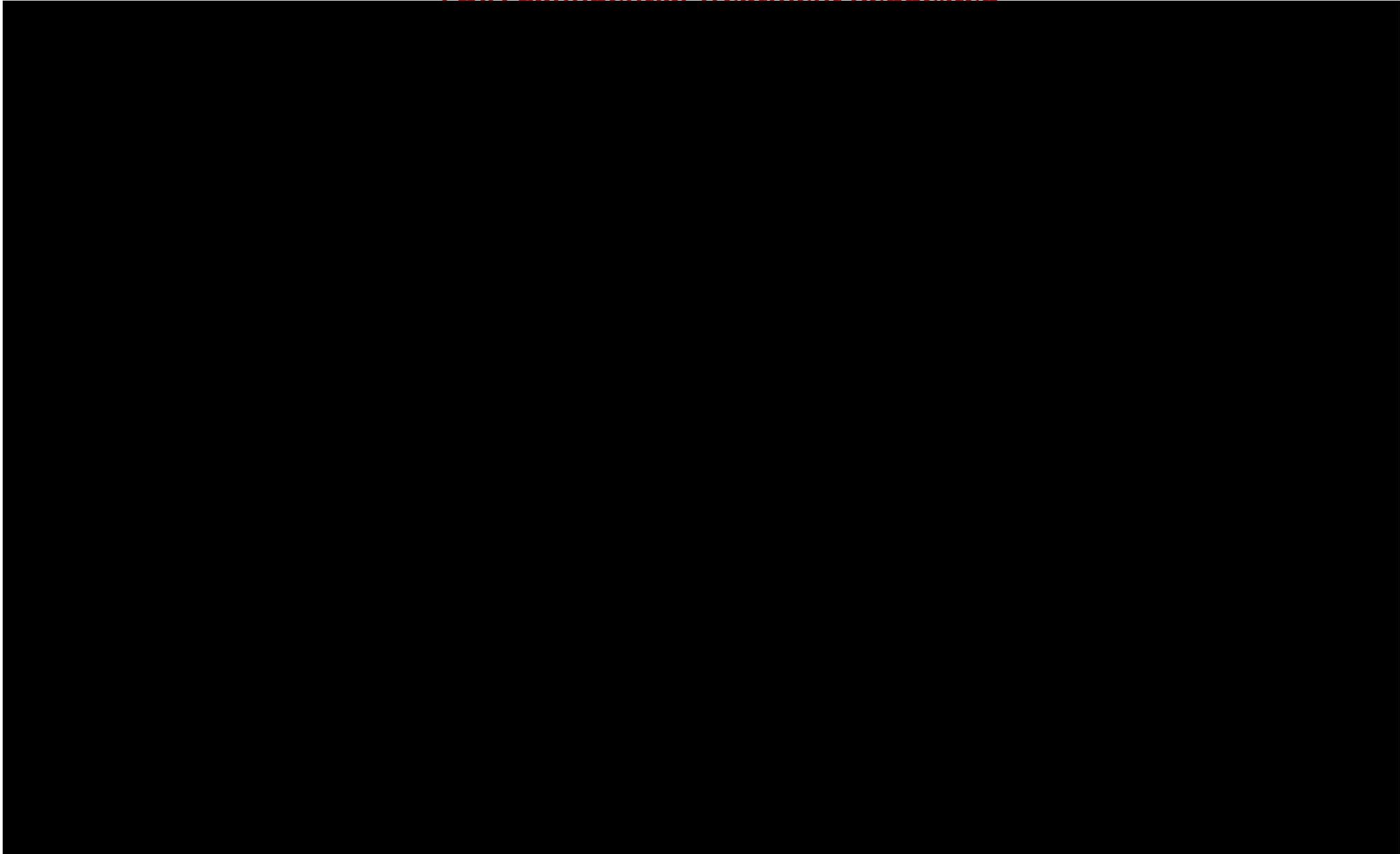
# Target Portfolio is Defensive and Diversified



*(1) The listed brands are a sample of CapitalSpring's current or past investment exposures.*

# Restaurant Industry: Attractive Fundamentals

**FOIA Confidential Treatment Requested**

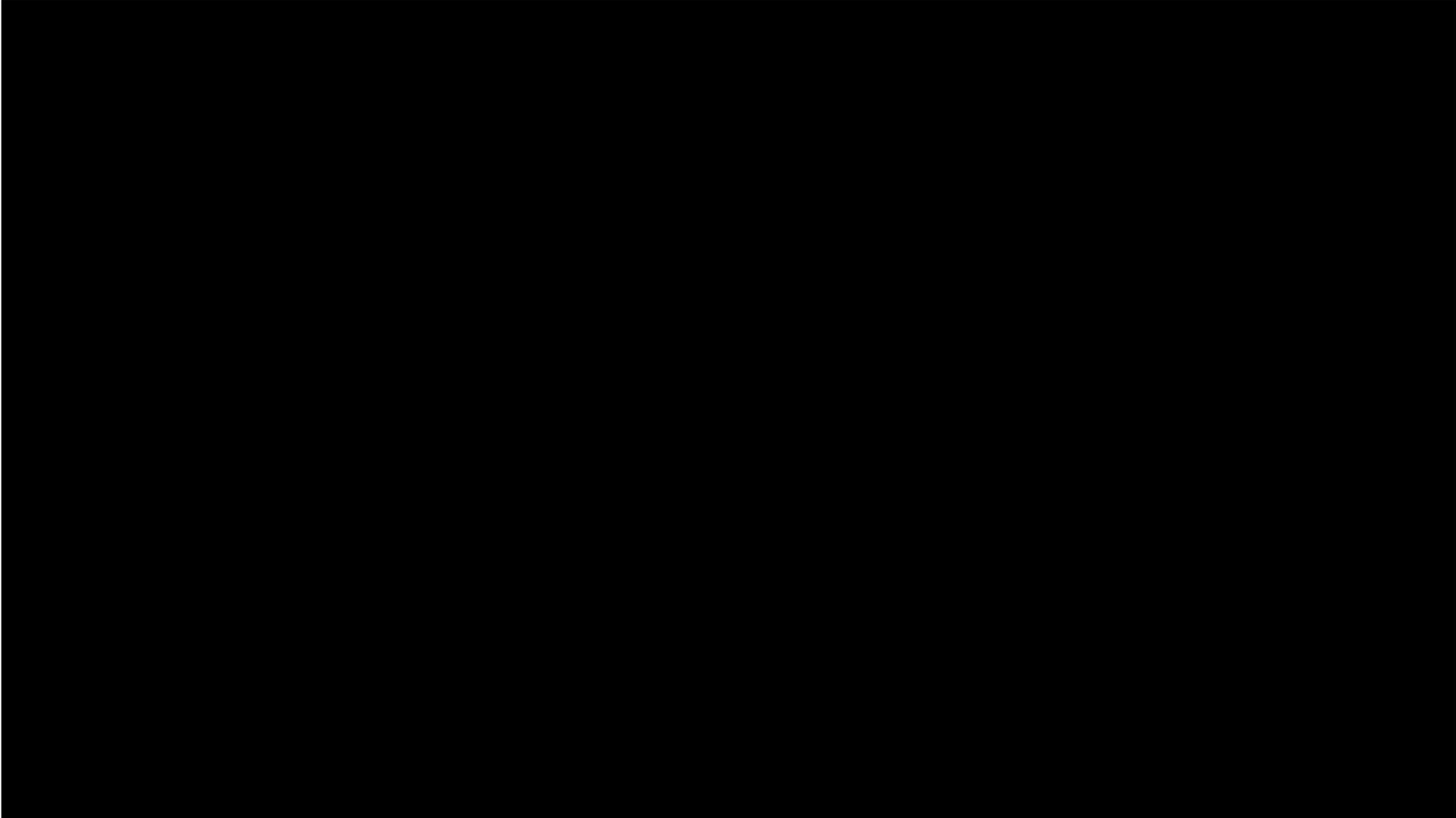


(2) National Restaurant Association.

(3) USDA, Economic Research Service (<https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartID=58364>).

(4) Bank of America presentation dated February 2019 titled "Thoughts on the Restaurant Sector for 2019" - represents share of monthly spending based on credit charges.

# Compelling Investment Opportunity



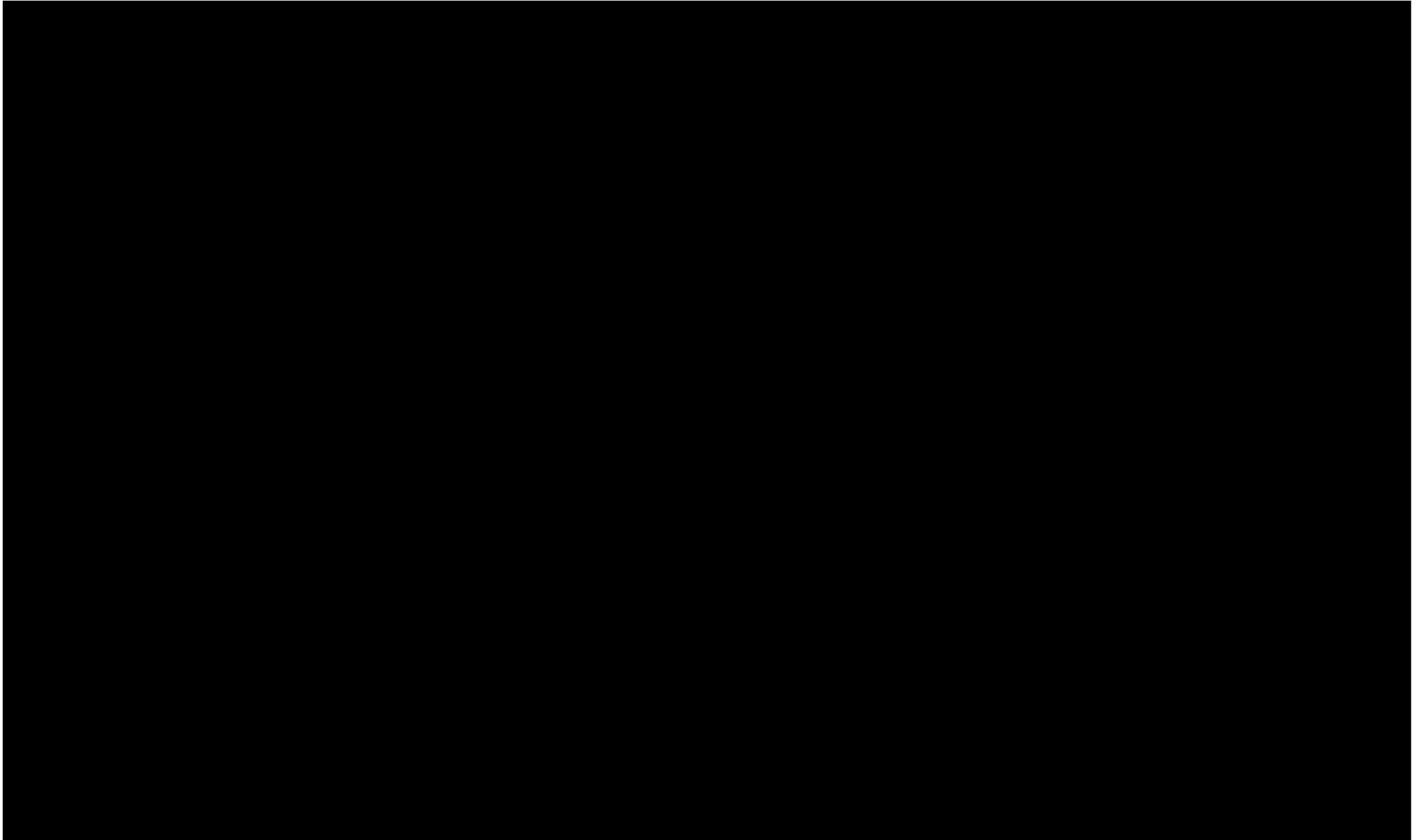
*and refinancing needs of \$4-9 billion annually.*

*(2) Restaurant Research, Finance & Valuations – 2019 report. Represents gap between the \$15.6bn in financing needs across \$1bn+ chains and the \$11.2bn originated during 2018. The gap represents financing that was not provided by the large traditional banks that are active in the restaurant industry.*

*(3) Franchise Times' Restaurant 200, August 2017.*

*(4) While we seek call protection and structural protections on all debt investments, there is no guarantee that such rights will be received in all future investments.*

# CapitalSpring's Competitive Edge



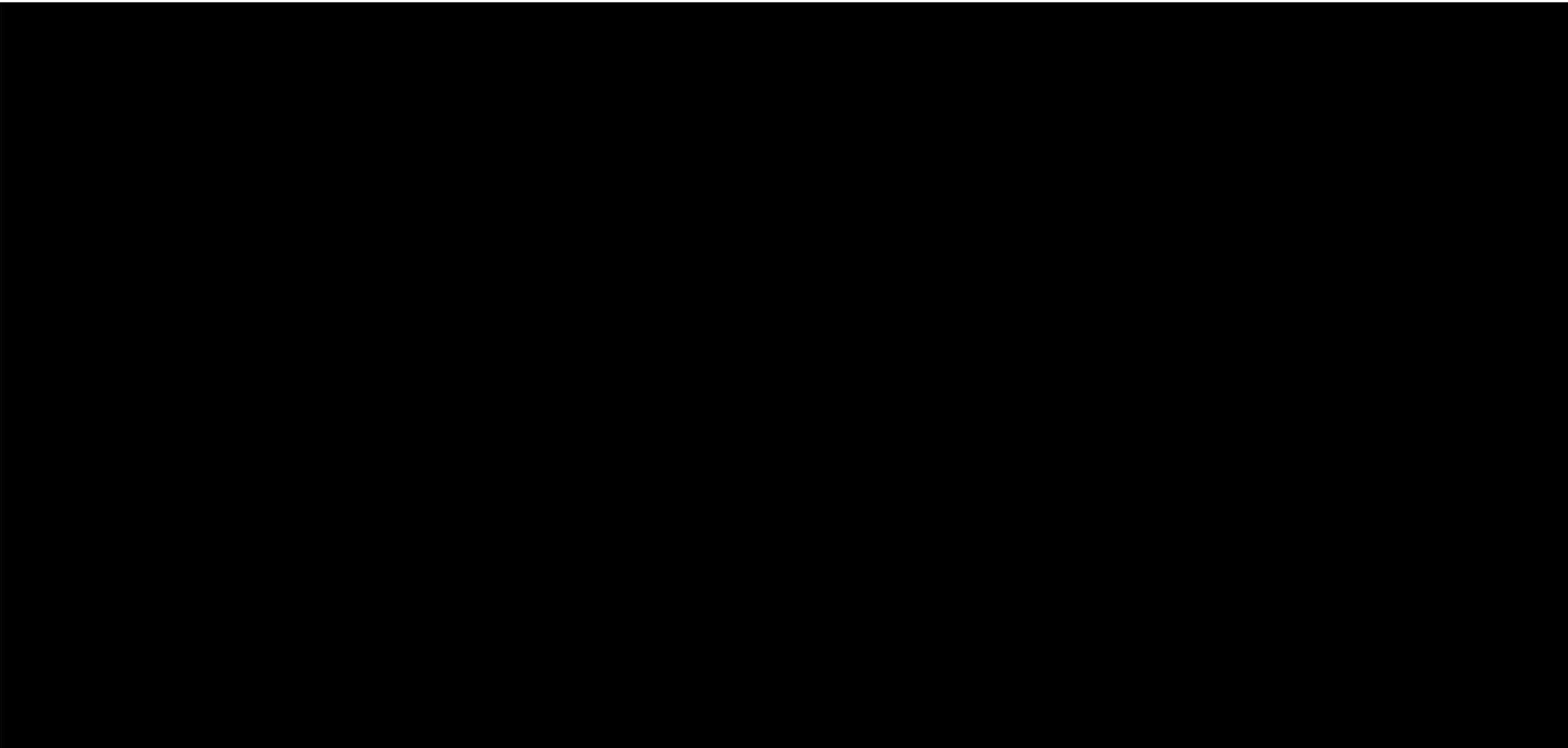
# Robust Deal Flow from Multi-Channel Investment Sourcing

**FOIA Confidential Treatment Requested**



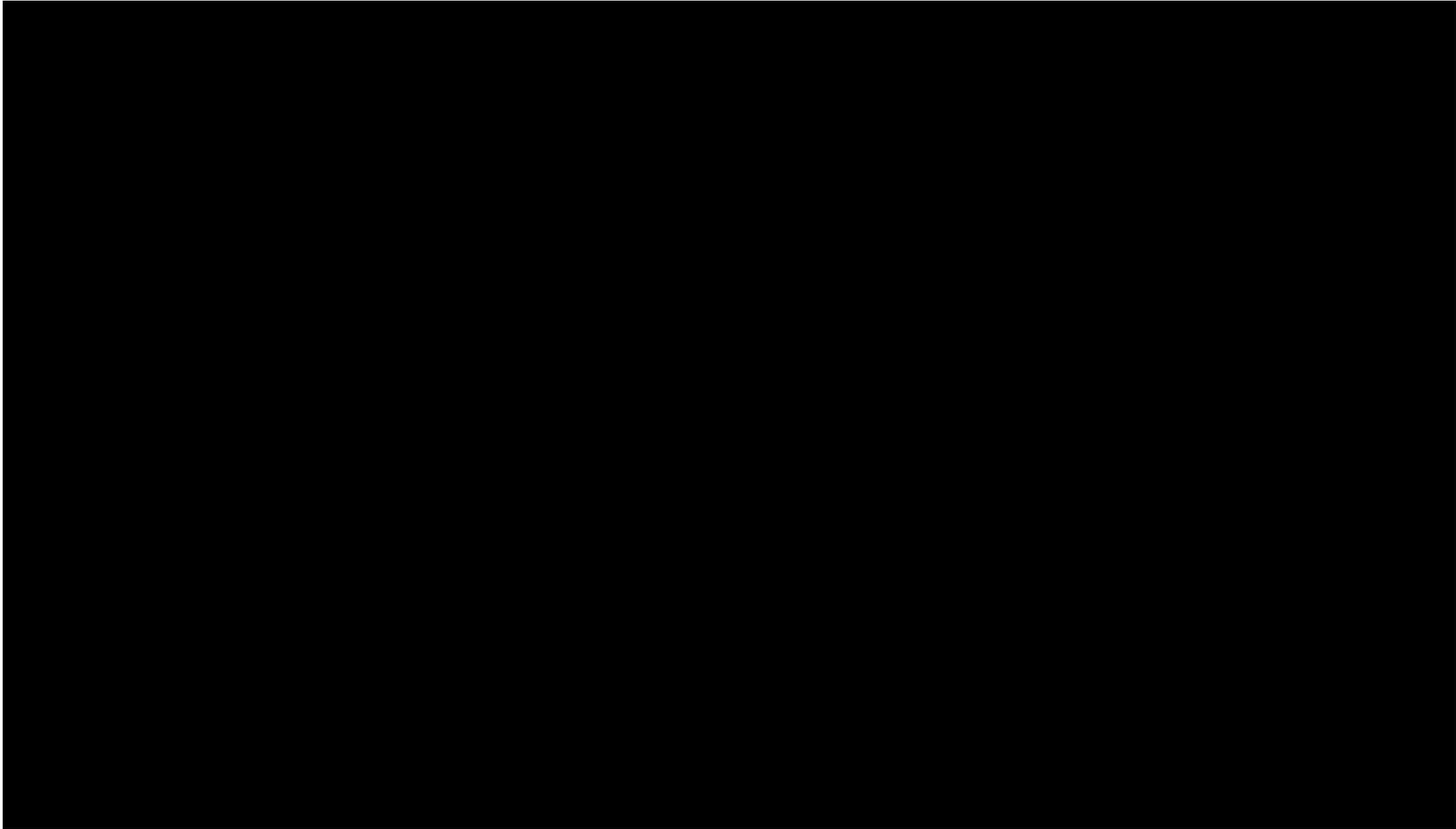
(1) The above reflects deals closed during the CapitalSpring Investment Partners V (CSIP V) Investment period.  
(2) CapitalSpring Investment Partners V (CSIP V) was closed in July 2017 and is currently in its investment period.

# Diligence Process Capitalizes on Information/Data Advantage



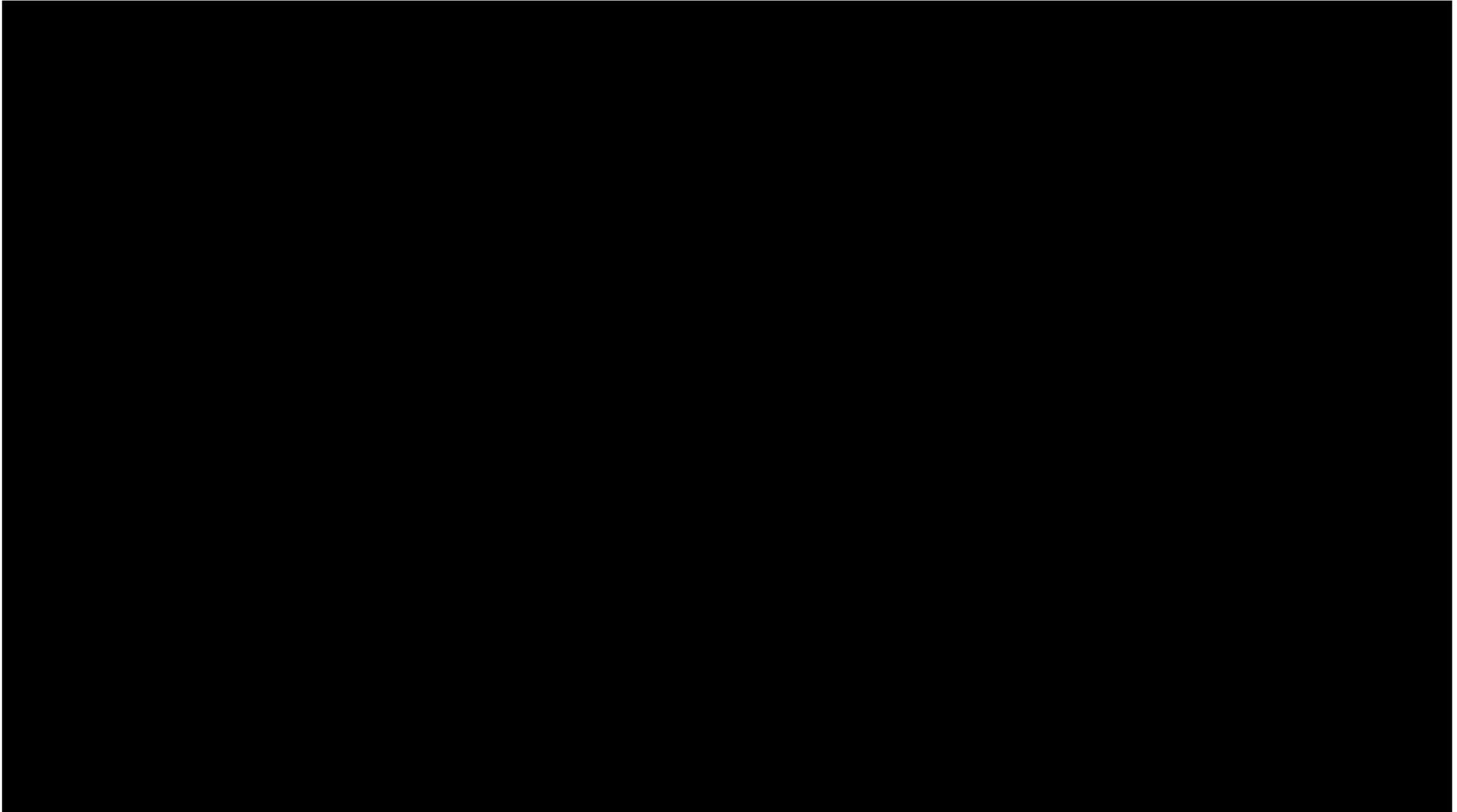
CapitalSpring synthesizes a combination of proprietary & industry data streams to continuously improve underwriting and portfolio management

# Proactive Portfolio Management and Risk Mitigation



# Embedded in the Restaurant Industry

**FOIA Confidential Treatment Requested**



# CapitalSpring Investment Team

## FOIA Confidential Treatment Requested

CapitalSpring Leadership			
<p><b>Richard Fitzgerald</b>  <b>Managing Partner, Co-Founder</b>            Ardshiel Inc., Vice President            CIBC Oppenheimer, Analyst  <i>MBA, Columbia Business School</i>  <i>BA, Trinity College</i></p>	<p><b>Todd Foust</b>  <b>Partner</b>            Goldman Sachs, Specialty Lending Group,            Managing Director, Mgt. Committee            GE Capital, Vice President  <i>MA, University of North Carolina</i>  <i>BA, University of North Carolina</i></p>	<p><b>Erik Herrmann</b>  <b>Partner, Head of Restaurant Investment Group</b>            Credit Suisse, Associate            Circle Peak Capital, Sr. Associate  <i>MBA, Yale University</i>  <i>BA/BS, University of Pennsylvania</i></p>	
Investment Team			
<p><b>Wade Daniel, CPA, CFA</b>  <b>Managing Director</b>            PriceWaterhouse Coopers, Sr. Associate  <i>BS, Auburn University</i></p>	<p><b>Tom Kuchler</b>  <b>Managing Director</b>            Carlson Capital, L.P., Senior Relationship Manager            Highland Capital Management, Director            Chase, Analyst/Associate  <i>MBA, Tuck School at Dartmouth</i>  <i>BA, Middlebury College</i></p>	<p><b>Chad Spaulding</b>  <b>Managing Director</b>            Trinity Capital, Managing Director            Goldman Sachs, Analyst  <i>MBA, Harvard Business School</i>  <i>BA, Brigham Young University</i></p>	
<p><b>Tee Isenhour, CPA</b>  <b>Principal</b>            Seneca Financial Group, Analyst  <i>MA, University of Texas</i>  <i>BBA, Southern Methodist University</i></p>	<p><b>Kaivon Abrishami</b>  <b>Senior Vice President</b>            Levine Leichtman Capital Partners, Assoc. Director            International Finance Corp., Emerging Markets            Investments  <i>BS, Georgetown University</i></p>	<p><b>William Billington</b>  <b>Vice President</b>            H.I.G. Capital, Associate            JP Morgan, Analyst  <i>BS, Washington and Lee University</i></p>	
<p><b>Jason Ruiz</b>  <b>Vice President</b>            Praesidian Capital, Associate            Sumitomo Mitsui Bank, Analyst  <i>BS, Boston College</i></p>	<p><b>Bryan Dickenson</b>  <b>Senior Associate</b>            Ancor Capital Partners, Sr. Associate            Deloitte Corporate Finance, Analyst  <i>BA, Texas Christian University</i></p>	<p><b>Michael Nash</b>  <b>Senior Associate</b>            Corridor Capital, Analyst            Trinity Capital, Analyst  <i>MS, Tulane University</i>  <i>BS, Tulane University</i></p>	<p><b>Joshua Zhang, CFA</b>  <b>Associate</b>  <i>BS, New York University</i></p>
<p><b>Jason Wat</b>  <b>Associate</b>  <i>BS, New York University</i></p>		<p><b>Patrick Tan</b>  <b>Analyst</b>            Accenture, Analyst  <i>BS, Cornell University</i></p>	

# CapitalSpring Portfolio Operations & Administration

**FOIA Confidential Treatment Requested**

## Strategic Operations Group

**Jim Balis**  
**Managing Director**  
 Restaurant Management Group, Founder  
 Café Enterprises, CEO  
 Sticky Fingers, CEO  
 57-unit Dunkin Donuts Franchisee, CEO  
*BA, Duke University*  
*Certified Turnaround Professional*

**Chad Cohen**  
**Principal**  
 Blockhead Burritos, COO  
 Subway, Franchisee  
 Hale & Hearty Soups, District Mgr. Director of Training  
 Boston Market  
*BS, University of Massachusetts - Amherst*

## Finance and Administration

**Christina Houghton, CPA**  
**Chief Financial Officer**  
 American Capital Sr. Floating, Controller  
 Apollo Investment Corporation, Controller  
 PricewaterhouseCoopers, Audit  
*BS, University of Richmond*

**Chad McIntyre**  
**Director of Finance**  
 Rosewell Capital, CFO  
 Healthcare Realty Trust, AVP, Dir.  
 J.C. Bradford, Corp Fin.  
*BBA, Middle Tennessee State University*

**James Musselwhite, CPA**  
**Controller**  
 Community & Southern Bank, SVP/Corp. Controller  
 Sun Trust Banks, Inc., FVP – Manager of SEC  
 Reporting/Acc. Consultation Manager  
 Invesco, Independent Consultant  
*MS, University of Florida*  
*BS, University of North Carolina*

**Bryan Parsels**  
**Vice President**  
 Avondale Partners, Analyst  
*BA, Vanderbilt University*

**Brett Carisio**  
**Accounting Associate**  
 American Capital, Sr. Floating, Sr. Accountant  
 Goldman Sachs Investment Mgt, Analyst  
*BS, Fairfield University*

**Denise Cochran**  
**Director of Loan Servicing**  
 Ares Management, VP Loan Servicing  
 American Capital, Director of Shared Services  
 & Sr. Manager of Loan Servicing  
 Allied Capital, Senior Accountant  
*BS, Johnson & Wales University*

**Adrienne Misko**  
**Head of Shared Services**  
*BFA, Ohio University*

## Legal

**T.A. McKinney**  
**General Counsel/Chief Compliance Off.**  
 Timbre Advisors LLC, Counsel  
 MeehanCombs, LP, General Counsel  
 FrontPoint Partners, L.P., General Counsel/Partner  
 Davis Polk & Wardwell, Associate  
*JD, Columbia University School of Law*  
*BA, University of Kentucky*

## Investor Relations

**Kristin Reilly**  
**Head of Investor Relations**  
 GoldenTree, International Business Dev.  
 BofA Merrill Lynch, Vice President  
 Arthur Andersen, Audit  
*MBA, Columbia Business School*  
*BS, Boston College*

**Mara Engel**  
**Associate**  
 Bain & Company, Marketing & Admin  
*BA, Ithaca College*

# Addendum: Important Notes Regarding Valuations and Internal Rates of Return

## Important Notes Regarding Valuations and Internal Rates of Return

**FOIA Confidential Treatment Requested**

### 1. Internal Rates of Return

IRR is the annualized implied discount rate calculated from a series of cash flows. It is the return that equates the present value of all capital invested in an investment to the present value of all returns of capital, or the discount rate that will provide a net present value of all cash flows equal to zero. All IRR calculations presented herein are unaudited. IRRs presented herein (except with regard to the IRRs of exited investments) assume the realization of all Fund investments at their fair market value in the judgment of CapitalSpring (see note 2 below) as of the date indicated. Actual realized returns on unrealized investments will depend, among other factors, on future operating results, the value of the assets and market conditions at the time of disposition, any related transactions costs, and the timing and manner of sale, all of which may differ from the assumptions on which the valuations used herein are based. Accordingly, the actual realized returns on these unrealized investments may differ materially from the returns indicated herein which would cause IRRs experienced by relevant fund investors to differ materially from those presented herein.

“Portfolio Gross IRRs” are measured without regard to either the timing of investor level inflows and outflows or whether all of the returns would, if distributed, be payable to such investors and thus do not reflect the rate of return experienced by investors. Portfolio Gross IRRs are calculated prior the deduction of carried interest, taxes, transaction expenses and other expenses to be borne by Fund investors (which amounts are expected to be substantial and, if reflected, would reduce returns).

“Investor Net IRRs” are calculated after giving effect to the deduction of carried interest, taxes, transaction expenses and other expenses to be borne by investors, excluding corporate tax expense at blocker entities in certain fund vehicles and is gross of any required tax withholding from distributions made to foreign investors.

“Fund Net IRRs” are calculated in the same manner as Investor Net IRR, but without deduction of carried interest.

### 2. Valuation of Investments

Valuations of investments presented herein are unaudited and reflect CapitalSpring’s estimate of the fair market value of such investments as of 3/31/19 unless otherwise specified. Valuations are inherently volatile and subject to change and may not necessarily be indicative of the inherent value of the underlying investments or the actual value to be realized from such investments. Valuations for unrealized investments that are not publicly traded are calculated at fair value consistent with valuations with generally accepted accounting principles in the United States and CapitalSpring’s Valuation Policy. Please refer to the CapitalSpring Valuation Policy for more details as to the methodologies utilized by CapitalSpring in valuing its investments. There can be no assurance that investments will be ultimately be realized at or above the levels reflected herein.

### 3. Overview of Certain Defined Terms

MOIC (“Multiple of Invested Capital”) – the ratio of total investment proceeds received to date plus current residual fair market value of investments over total invested capital.

MOCC (“Multiple of Committed Capital”) – the ratio of total distributions to investors to date plus current residual fair market value of investment portfolio over total original committed capital to the fund.

Net Leverage (LTM) – the ratio of total debt capital less excess cash over corporate EBITDA

Cash Coverage (LTM) – the ratio of corporate EBITDA less maintenance capex and cash taxes over cash debt service

## Addendum: Important Notes (Cont'd)

### FOIA Confidential Treatment Requested

#### ESG Initiatives

CapitalSpring is committed to integrating environmental, social, and governance (ESG) considerations into its investment decisions, and does so in accordance with its ESG Policy. CapitalSpring considers material ESG issues in the course of its due diligence and in the management and monitoring of portfolio investments to the extent reasonably practical under the circumstances, subject, in any event, to the provisions of the Partnership Agreements of the funds concerned, and to the duty of CapitalSpring to seek to maximize the returns on investment for its investors. "Material" ESG issues are defined as those issues that CapitalSpring in its sole discretion determines have or have the potential to have a direct substantial impact on a portfolio company's ability to create, preserve, or erode economic value, as well as environmental and social value for itself and its investors. CapitalSpring's investment team is primarily responsible for ensuring that the consideration of ESG issues is integrated into investment decisions. Where additional subject matter expertise is needed, the team may utilize external resources as relevant and necessary.

The Strategic Operations Group has been instrumental towards our ESG efforts. For example, the Strategic Operations Group worked closely with one of the Firm's portfolio companies (Shari's) in CSIP V to put together an aggressive strategic energy management program dubbed SWEEP (Shari's Water/Energy Efficiency Program). The goal was to reduce energy costs and consumption without interfering with the guest experience. SWEEP has had a material positive impact on Shari's operations, including: i) >6% reduction in electrical usage; ii) >7% reduction in gas usage; iii) 19% less waste; and iv) >37% water savings across its portfolio relative to its 2012 baseline. The U.S. Department of Energy even recognized Shari's for achieving water savings as a partner in the Better Buildings Challenge, a DOE program that works with market leaders to drive the acceleration of cost-effective and proven strategies to improve the energy efficiency of the nation's buildings, manufacturing plants and multifamily housing.

Our ESG efforts continue to evolve as we further integrate ESG initiatives into our investment processes and portfolio oversight protocols.

# Important Disclosures

## FOIA Confidential Treatment Requested

References in this presentation (“Presentation”) to “CapitalSpring Direct Lending Partners, LP,” “CapitalSpring,” “we,” “us,” and “our” refer to CSFC Management Company LLC (the “Advisor”).

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# Important Disclosures (continued)

## FOIA Confidential Treatment Requested

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Information throughout the Presentation provided by sources other than CapitalSpring (including information relating to portfolio companies) has not been independently verified and, accordingly, CapitalSpring makes no representation or warranty in respect to this information.

Figures as of 3/31/19, unless otherwise noted.

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KENTUCKY RETIREMENT SYSTEMS | AUGUST 27, 2019

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**The Partnerships described herein are speculative investments that involve significant risks, and there can be no assurance that the Fund will achieve its objectives or that the Partnership and its investors will not incur substantial or total losses. In considering an investment in the Partnership, prospective investors should consult their independent legal, tax, financial and other advisors, and should be aware of certain risk factors. Prospective investors are directed to read the more detailed discussions of risks and conflicts set forth in the Memorandum.**

Past performance of the principals of the General Partner, the Investment Manager or any other collective investment vehicles or arrangements managed by such persons is no guarantee of the future performance of the Partnership or any such party. The investments described herein are noted for illustration purposes only and are included to illustrate the way in which the Partnership would invest in certain securities. The returns modeled on sample investments are not representation that other investments made by ArrowMark have similar return profiles. It should not be assumed that this example or future investments will be profitable. If any assumptions used do not prove to be true, results may vary substantially.

Investment Risks: An investment in the Fund involves a high degree of risk and there can be no guarantee against loss of an investor's entire investment. An investment in the Fund is suitable only for investors who can bear the risks associated with limited liquidity and should be viewed as a long-term investment comprising a part, but not all, of an investment program. While the Investment Adviser will attempt to manage investment risks, there can be no assurance that investors will not suffer losses.

Fund characteristics have been determined using a variety of modeling techniques. Small changes in model assumptions, such as changes in interest rates, repayment speeds, credit quality, recovery rates, and market liquidity, may lead to significant changes in model outputs. Fund-level characteristics including yield to maturity, weighted average life, duration, and credit quality are calculated using portfolio net exposures. The breakdown of portfolio exposures, including credit quality, underlying asset types, tranches, geographies, sectors, and currencies are calculated using portfolio gross exposures.

Average credit quality is the weighted measure of the credit quality of the underlying securities within the representative regulatory capital relief investment portfolio (the "portfolio"). In some cases, the portfolio is able to base this calculation on the credit quality assigned by an independent, national recognized statistical rating organization (an "NRSRO"; such as Moody's, S&P, etc.). In other cases, a rating for the individual asset held by the portfolio is not available. In these cases, the portfolio attempts to make a best-effort approximation of the credit rating of the asset by using the credit rating of the underlying issuer or a comparable asset as a proxy. Such investments, however, may perform differently and have different risk characteristics than a direct investment in the underlying issuer or comparable assets. As of 6/30/2019, approximately 0% of the portfolio is rated by an NRSRO. It is important to note that the portfolio's average credit quality, as reported in this document, is a good-faith estimate by the portfolio and should not necessarily be considered the same rating that would be assigned by any other NRSRO. Further clarification on this characteristic figure can always be discussed and clarified by the portfolio.

Bloomberg Barclays U.S. Corporate High Yield Index ("Barclays High Yield") represents the U.S. dollar denominated, non-investment grade, fixed-rate, taxable corporate bond market. Bloomberg Barclays U.S. Aggregate Bond Index ("Barclays Aggregate") including interest income covers the U.S. dollar-denominated, investment grade, fixed-rate, taxable bond market of SEC registered securities. The index includes bonds from Treasury, government agency, corporate, plus mortgage- and asset-backed sectors. The S&P/LSTA U.S. Leveraged Loan 100 Index ("S&P/LSTA Lev Loan") is designed to reflect the performance of the largest facilities in the leveraged loan market.

ArrowMark Partners is a trade name for ArrowMark Colorado Holdings, LLC, a registered investment adviser.



KRS-ArrowMark Fund I, LP Update

ArrowMark Partners

Regulatory Capital Relief Overview &  
ArrowMark Investment Approach

Appendix

- In [REDACTED], Kentucky Retirement Systems (“KRS”) selected ArrowMark Partners to construct a [REDACTED] diversified portfolio of regulatory capital relief transactions



**Past performance is no guarantee of future results.** <sup>1</sup>Correlations are based on aggregate regulatory capital relief investments within ArrowMark’s Fundamental Opportunity Fund, L.P. and do not reflect deduction of advisory fee, performance fee or other expenses. Please refer to the performance on pages 8 and 23 to evaluate the impact of fees and expenses.

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[Redacted]

[Redacted]

[Redacted]

As of 7/31/2019. **Past performance is no guarantee of future results.**  
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Market Source<sup>1</sup>



Transaction Type<sup>2</sup>



Collateral Type<sup>1</sup>



Tranche Type<sup>1</sup>



As of 7/31/2019. **Past performance is no guarantee of future results.** The above charts represent characteristics of KRS-ArrowMark Fund I, LP. Fund characteristics have been determined using a variety of modeling techniques. Small changes in model assumptions, such as changes in interest rates, repayment speeds, credit quality, recovery rates, and market liquidity, may lead to significant changes in model outputs. <sup>1</sup>Based on original par amount of all investments since fund inception. <sup>2</sup>Based on original par amount of all primary investments since fund inception.

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[Redacted]

[Redacted]

[Redacted]

	Yield to Maturity	Ann. Since Inception	Cumulative Since Inception	Maximum Drawdown	Standard Deviation	Sharpe Ratio	Correlation	Beta
<b>KRS-ArrowMark Fund I, LP (Net Total Return)</b>	<b>10.68%</b>	<b>10.21%</b>	<b>11.28%</b>	<b>0.00%</b>	<b>1.18%</b>	<b>6.66</b>	--	--
<b>KRS-ArrowMark Fund I, LP<sup>1</sup> (Net Investment Income)</b>	--	<b>9.56%</b>	<b>10.51%</b>	--	--	--	--	--
Barclays High Yield	5.88%	6.81%	7.51%	-4.53%	5.80%	0.76	0.31	0.06
Barclays Aggregate	2.52%	7.68%	8.48%	-1.43%	2.94%	1.81	-0.28	-0.11
S&P/LSTA Lev Loan	5.96%	4.63%	5.10%	-4.39%	5.39%	0.42	0.45	0.10

As of 7/31/2019. The fund inceptioned on June 25, 2018. **Past performance is no guarantee of future results.** <sup>1</sup>Net investment income is expressed as a percentage of invested capital. Invested capital is equal to an investor's capital contribution less any returns of capital.

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[Redacted]



# ArrowMark Values the Opportunity to Deepen and Grow the Partnership with Kentucky Retirement Systems

Investment Vehicle	▪ KRS-ArrowMark Fund, LP (drawdown, evergreen fund of one)
Size	[REDACTED]
[REDACTED]	[REDACTED]



KRS-ArrowMark Fund I, LP Update

ArrowMark Partners

Regulatory Capital Relief Overview &  
ArrowMark Investment Approach

Appendix

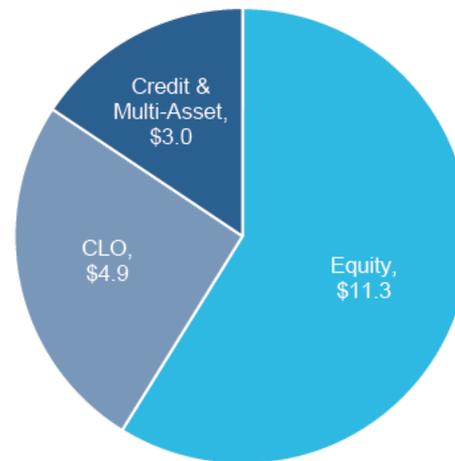
Founded in 2007 by investment professionals with a proven track record of delivering strong returns and preserving client capital

### ArrowMark Partners At-A-Glance

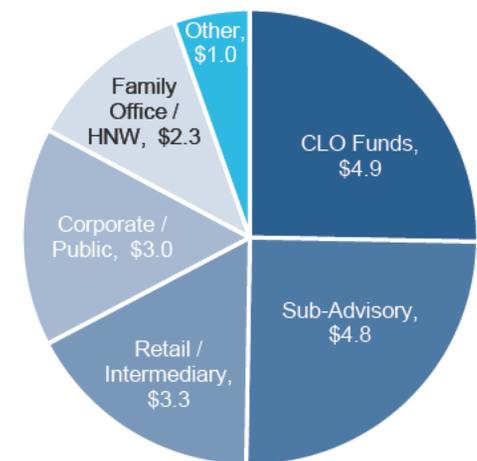
- Active investment process, driven by fundamental research and analysis
- Specialized expertise in niche credit and capacity constrained equity markets
- Manage alternative, traditional, and customized investment strategies in public and private vehicles
- 67 employees and growing
- 40 tenured investment professionals
- 100% employee-owned
- Headquartered in Denver, CO with presence in California, London, and New York

### \$19.3 billion in Assets Under Management

By Asset Type (\$B)



By Investor Type (\$B)



As of 6/30/2019. Other includes insurance, sovereign wealth, not-for-profit institutions and internal capital.

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# Our specialized expertise and research-driven process allow us to exploit niche investment opportunities across credit and equity markets

## ArrowMark's Investment Capabilities

Securitized Credit	Regulatory Capital Relief	CLO / Leveraged Loans	Specialty Finance	Public / Private Equity
<p><b>Seeks to capture excess yield in niche market segments</b></p> <ul style="list-style-type: none"> <li>▪ Esoteric ABS</li> <li>▪ Agency</li> <li>▪ CLO debt / equity / warehouse</li> <li>▪ RMBS / CMBS</li> </ul>	<p><b>Highly asymmetric opportunity</b></p> <ul style="list-style-type: none"> <li>▪ Bilateral, club and syndicated transactions</li> <li>▪ Diversified collateral types</li> </ul>	<p><b>Comprehensive coverage of the loan universe</b></p> <ul style="list-style-type: none"> <li>▪ Broadly syndicated corporate loans</li> <li>▪ Syndicated middle market corporate loans</li> </ul>	<p><b>Commercial Real Estate</b></p> <ul style="list-style-type: none"> <li>▪ Middle market bridge loans</li> </ul> <p><b>Lower middle market corporate</b></p> <ul style="list-style-type: none"> <li>▪ Cross-capital structure, flexible growth financing</li> </ul>	<p><b>Highly active; emphasis on capacity constrained markets</b></p> <ul style="list-style-type: none"> <li>▪ Small and mid-cap</li> <li>▪ Biotech</li> <li>▪ Liquid Alternatives</li> <li>▪ Hedged, utilizing option structures</li> </ul>

▶ Shared fundamental research-based process, with emphasis on mitigating drawdowns ◀

▶ Integrated equity & credit research ◀

▶ Cross-collaboration across platform ◀

Experienced investment team that draws upon the collective, diversified expertise of the firm's 40 investment professionals

**REGULATORY CAPITAL RELIEF  
INVESTMENT TEAM**

**David Corkins**  
*Partner, Co-Portfolio  
Manager*  
32 Years of Experience

**Kaelyn Abrell**  
*Partner, Co-Portfolio  
Manager*  
19 Years of Experience

**Juan Grana**  
*Managing Director*  
20 Years of Experience

**+ 4 Investment Analysts**  
Average 11 Years of Experience

**REGULATORY CAPITAL RELIEF  
INVESTMENT COMMITTEE**

**David Corkins**  
*Partner*

**Kaelyn Abrell**  
*Partner*

**Karen Reidy**  
*Partner*  
29 Years of Experience

**Sanjai Bhonsle**  
*Partner*  
23 Years of Experience

**ARROWMARK INVESTMENT TEAM**  
40 Investment Professionals / Average 14 Years of Experience

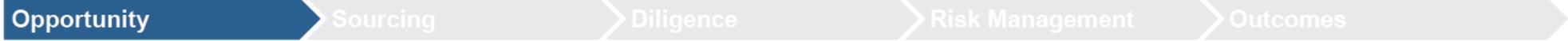


KRS-ArrowMark Fund I, LP Update

ArrowMark Partners

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**Diversified Pools of Performing Collateral**

- [Redacted]
- [Redacted]

**Structural Alignment**

- [Redacted]
- [Redacted]

**Income-Driven Returns with Low Correlation**

- [Redacted]
- [Redacted]

**Effective Tool for Large, Global Bank Issuers**

- [Redacted]
- [Redacted]
- [Redacted]

**Past performance is no guarantee of future results.** Diversification does not eliminate the risk of experiencing investment loss.

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[Redacted]

[Redacted]

The above characteristics are hypothetical and do not represent a particular investment.

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Opportunity

Sourcing

Diligence

Risk Management

Outcomes



Team as of 6/30/2019. **Past performance is no guarantee of future results.** There is no assurance the objectives may be met. Diversification does not eliminate the risk of experiencing investment loss. Transaction data as of 7/31/2019.

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[Redacted]

[Redacted]





Opportunity

Sourcing

Diligence

Risk Management

Outcomes

Diversification does not eliminate the risk of experiencing investment loss.  
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Opportunity

Sourcing

Diligence

Risk Management

Outcomes



Diversification does not eliminate the risk of experiencing investment loss.  
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[Redacted]

Opportunity

Sourcing

Diligence

Risk Management

Outcomes



Opportunity

Sourcing

Diligence

Risk Management

Outcomes

As of 7/31/2019. Past performance is no guarantee of future results. Correlations are based on aggregate regulatory capital relief investments within ArrowMark's Fundamental Opportunity Fund, L.P. and do not reflect deduction of advisory fee, performance fee or other expenses. Please refer to the performance on page 26 to evaluate the impact of fees and expenses. Data from 2/01/2011 to 7/31/2019. Source: ArrowMark, Bloomberg, FTSE, HFRI, JPMorgan, MSCI, Markit, Russell, S&P.

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KRS-ArrowMark Fund I, LP Update

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**DAVID CORKINS | Partner, Co-Portfolio Manager**

David is a founding Partner and Portfolio Manager of ArrowMark's private funds and separate managed accounts. Prior to founding ArrowMark Partners, he served as Executive Vice President and Portfolio Manager at Janus Capital Group, managing \$20 billion across multiple investment strategies: Janus Fund, Janus Mercury Fund and Janus Growth & Income Fund, as well as institutional separate accounts (1997-2007). David was also an Assistant Portfolio Manager and Equity Analyst for various equity, international and balanced portfolios (1995-1997). David served as Chief Financial Officer of Chase US Consumer Services, Inc., a Chase Manhattan mortgage business (1988-1995). Before being named CFO, David worked in a broad variety of businesses at Chase, including international banking, commercial lending and asset-backed finance. David graduated cum laude from Dartmouth College with a bachelor's degree in English and Russian and earned an MBA at Columbia University.

**KAELYN ABRELL | Partner, Co-Portfolio Manager**

Kaelyn is a Partner and Portfolio Manager of ArrowMark's private credit funds and separately managed accounts and leads the firm's fixed income efforts in securitized investments, including regulatory capital relief since 2010. Kaelyn was also the lead analyst for the firm's participation in the Term Asset-Backed Securities Loan Facility ("TALF") program. Prior to joining ArrowMark in 2008, she was an analyst at Janus Capital Group where her areas of focus included residential and commercial mortgage-backed securities, asset-backed securities, and interest rates (2004-2008). Previously, Kaelyn worked at Great-West Life where she was Assistant Portfolio Manager of \$5.5 billion in separate account, general account and total return assets with a focus on high quality fixed income securities (1998-2004). Kaelyn graduated from Illinois State University with a bachelor's degree in Economics and earned an MBA from Indiana University.

**JUAN GRANA | Managing Director**

Juan is a Managing Director on the ArrowMark credit team. Prior to joining ArrowMark, Juan spent five years at Nomura where he most recently served as a Managing Director in Nomura's Structured Solutions Group and previously in the Credit Structuring team. Prior to joining Nomura, he spent over a decade at Credit Suisse where he was a senior member of the Credit Structuring team focusing on bank capital solutions including synthetic risk transfer, and before that a senior member of the Risk Management team implementing Basel II. Prior to this Juan worked as management consultant at Oliver Wyman and Company with a focus on risk management and capital management solutions. Juan brings twenty years of industry experience and extensive knowledge of bank capital, balance sheet solutions, and structured finance. Juan has a Master of Physics honors degree from The University of Oxford.

### Investment Operations

#### **EZE Castle OMS**

Modeling, TCA, Counterparty trade communication, SWIFT formatting

#### **ACA Northpoint**

Portfolio Management, Reporting, Risk Management, Data Warehouse

#### **Bloomberg and The Yield Book**

Portfolio Analytics, Performance Reporting, Contribution and Attribution

#### **Broadridge / QED Financial Solutions**

External Portfolio Accounting, Shadow Accounting for all Portfolios, Performance Reporting, Reconciliation

### Asset & Vehicle Administration

#### **Goldman, Sachs, & Co.**

Prime Broker

#### **KPMG**

Independent Auditor

#### **Vedder Price P.C. / Walkers**

Legal Counsel

#### **ALPS Alternative Investment Services**

Fund Administration

### Compliance & Regulatory

#### **ACA Compliance and Ascendant Compliance**

Annual Compliance Review 206(4)-7, 38(a), GIPS

#### **ALPS Distributors**

Review of Marketing Material, FINRA Representative Registration, Policies and Procedures

#### **EZE Castle Compliance**

Pre and Post Trade Compliance

#### **Glass Lewis**

Proxy Voting Guidelines and Policies, Proxy Research, Form N-PX

#### **SchwabCT**

Code of Ethics, Personal Trading, Employee Training and Certifications, MNPI Monitoring

# Contact



100 Fillmore Street, Suite 325  
Denver, Colorado 80206

GRETH LESTER

212.468.5451  
[glester@arrowmarkpartners.com](mailto:glester@arrowmarkpartners.com)



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**KENTUCKY RETIREMENT SYSTEMS**  
INVESTMENTS

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To: Investment Committee – Kentucky Retirement Systems  
From: Rich Robben, CIO  
Date: August 27th, 2019  
Subject: Recommendation to renew contract with BNY Mellon for custodial services

In April 2019 it came to the attention of staff that the contract for custodial services between BNY Mellon and KRS had expired in July of 2018. Staff worked with BNY to create an extension of the original contract to June 30<sup>th</sup> 2019, and that was executed in April. We have also been working on a renewal contract, which was recently completed. The new contract will be for a period of 5 years, beginning July 1<sup>st</sup> 2019, and ending June 30<sup>th</sup> 2024.

BNY Mellon has served as our custodian since 2013. Staff, including Investments, Operations, and Accounting have been very pleased with their work, and wish to keep them in place. Given that, and the fact that the price schedule negotiated in 2013 will remain in place for the entire term of the new agreement, we are recommending that the contract be renewed as presented.

***Motion: Renew the agreement for custodial services as presented with BNY Mellon.***

EXECUTION VERSION

**AMENDED AND RESTATED MASTER CUSTODY AGREEMENT**

**by and between**

**KENTUCKY RETIREMENT SYSTEMS**

**and**

**THE BANK OF NEW YORK MELLON**

**AMENDED AND RESTATED MASTER CUSTODY AGREEMENT**

**AMENDED AND RESTATED MASTER CUSTODY AGREEMENT** (“Agreement”), dated as of the latest date set forth on the signature page hereto between **KENTUCKY RETIREMENT SYSTEMS**, a governmental pension plan qualified under Section 401(a) of the Code organized under the laws of the Commonwealth of Kentucky for and on behalf of each of the Kentucky Employees Retirement System, the County Employees Retirement System, the State Police Retirement System; and the Kentucky Retirement Systems Insurance Trust Fund (each individually herein referred to as the “Client”) and **THE BANK OF NEW YORK MELLON**, a bank organized under the laws of the state of New York (the “Custodian”).

**RECITALS**

**WHEREAS**, the Board of Trustees of the Kentucky Retirement Systems (“Board of Trustees”) administers each of the Kentucky Employees Retirement System, the County Employees Retirement System, and the State Police Retirement System, which are “governmental plans” within the meaning of Section 414(d) of the Internal Revenue Code (“Code”) and “qualified” pursuant to Section 401(a) of the Code and also administers the Kentucky Retirement Systems Insurance Trust Fund, a §115 trust, which is to provide fringe benefits for health insurance as provided in KRS 61.702 and was created pursuant to Section 106 of the Code; and

**WHEREAS**, the Board of Trustees at its meeting held on December 5, 2012 has by order pursuant to authority granted in KRS 61.645(2) & (9)(e) and KRS 61.650(2) authorized Custodian to serve as custodian for the Securities, cash and other assets of each Client; and

**WHEREAS**, the Board of Trustees and the Custodian entered into a certain Master Custody Agreement dated as of June 24, 2013 (the “Original Agreement”); and

**WHEREAS**, the Board of Trustees at its meeting held on \_\_\_\_\_, 2019 has by order pursuant to authority granted in KRS 61.645(2) & (9)(e) and KRS 61.650(2) authorized Custodian to continue to serve as custodian for the Securities, cash and other assets of each Client; and

**WHEREAS**, the Board of Trustees and the Custodian desire to amend the Original Agreement in certain respects and to otherwise restate the Existing Agreement in its entirety all as set forth herein; and

NOW THEREFORE, in consideration of their mutual agreements hereinafter set forth and intending to be legally bound hereby, the parties hereto agree as follows:

**SECTION 1- CUSTODY ACCOUNTS; INSTRUCTIONS**

**1.1 Definitions.** Whenever used in this Agreement, the following words shall have the meanings set forth below:

“Account” or “Accounts” shall have the meaning set forth in Section 1.2.

“Authorized Instructions” shall have the meaning set forth in Section 1.4.

“Authorized Person” shall mean any Person authorized by the Client to give Oral or Written Instructions with respect to one or more Accounts or with respect to foreign exchange, derivative investments or information and transactional web based services provided by the Custodian or a BNY Mellon Affiliate. Authorized Persons shall include Persons authorized by an Authorized Person including Investment Managers and their Authorized Persons. Authorized Persons, their signatures and the extent of their authority shall be provided by Written Instructions. Authorized Persons of the Client, their signatures and the extent of their authority shall be provided by Written Instructions of the Client from one of the persons identified in Exhibit B, or their authorized successors. The Custodian may conclusively rely on the authority of such Authorized Persons until it receives a Written Instruction to the contrary. Any of the Authorized Persons on Exhibit B may designate an Investment Manager as being authorized to provide Securities trading instructions to the Custodian with respect to specifically identified Accounts. Exhibit B may be amended from time to time by the Client by Written Instructions to the Custodian. Any amendment shall reference this Agreement and be incorporated herein as an Amended Exhibit B.

“BNY Mellon Affiliate” shall mean any direct or indirect subsidiary of The Bank of New York Mellon Corporation.

“Book-Entry System” shall mean the U.S. Federal Reserve/Treasury book-entry system for receiving and delivering securities, its successors and nominees.

“Business Day” shall mean any day on which the Custodian and relevant Depositories and Subcustodians are open for business.

“Code” shall mean the Internal Revenue Code of 1986, as amended.

“Country Risk Events” shall have the meaning set forth in Section 2.1.

“Data Providers” shall mean pricing vendors, analytics providers, brokers, dealers, investment managers, Authorized Persons, Subcustodians, Depositories and any other Person providing Market Data to the Custodian.

“Data \_\_\_\_\_ Terms \_\_\_\_\_ Website” shall mean <http://www.bnymellon.com/products/assetservicing/vendoragreement.pdf> or any successor website the address of which is provided by the Custodian to the Client.

“Depository” shall include the Book-Entry System, the Depository Trust Company, Euroclear, Clearstream Banking S.A., the Canadian Depository System, CLS Bank and any other securities depository, book-entry system or clearing agency (and their respective successors and nominees) authorized to act as a securities depository, book-entry system or clearing agency pursuant to applicable law.

“Investment Manager” shall mean any entity or person authorized by the Client by Written Instructions to the Custodian to provide Securities trading instructions to the Custodian with respect to specifically identified Accounts.

“Losses” shall mean, collectively, losses, costs, expenses, damages, liabilities and claims.

“Market Data” shall mean pricing or other data related to Securities and other assets. Market Data includes but is not limited to security identifiers, valuations, bond ratings, classification data, and other data received from investment managers and others.

“Non-Custody Assets” shall have the meaning set forth in Section 9.1.

“Oral Instructions” shall mean instructions expressed in spoken words received by the Custodian.

“Operational Losses” shall have the meaning set forth in Section 2.2.

“Person” or “Persons” shall mean any entity or individual.

“Required Care” shall have the meaning set forth in Section 2.2.

“RFP” means Client's Request for Proposal: Global Custody and Related Services, dated September 4, 2012.

“Securities” shall include, without limitation, any common stock and other equity securities, depository receipts, limited partnership and limited liability company interests, bonds, debentures and other debt securities, notes or other obligations, and any instruments representing rights to receive, purchase, or subscribe for the same, or representing any other rights or interests therein (whether represented by a certificate or held in a Depository, with a Subcustodian or on the books of the issuer) that are acceptable to the Custodian.

“Sanctions” means all economic sanctions laws, rules, regulations, executive orders and requirements administered by any governmental authority of the United States (including the United States Office of Foreign Assets Control) or any other applicable domestic or foreign authority with jurisdiction over the board of Trustees and/or the Clients

“Standard of Care” shall have the meaning set forth in Section 7.1.

“Subcustodian” shall mean a bank or other financial institution (other than a Depository) that is utilized by the Custodian or by a BNY Mellon Affiliate, in its discretion, in connection with the purchase, sale or custody of Securities or cash hereunder.

“Tax Obligations” shall mean taxes, withholding, certification and reporting requirements, claims for exemptions or refund, interest, penalties, additions to tax and other related expenses.

“Third Party Service Provider” shall mean a service provider hired by the Custodian

to provide or to assist the Custodian with providing value-added services requested by the Client.

“Written Instructions” shall mean (i) with respect to communications of and from the Client, written communications received from an Authorized Person of the Client by the Custodian by secure, encrypted email following such protocols as the Client and Custodian may establish from time (“Client Written Instructions”); and (ii) in all instances other than with respect to the Client instructions of and from the Client (including, instructions from Investment Managers or service providers of the Client), written communications received by the Custodian by S.W.I.F.T., overnight delivery, postal services, facsimile transmission, email (including secure, encrypted email), on-line communication system or other method or system, each as specified by the Custodian as available for use in connection with the services hereunder.

**1.2 Establishment of Account; Separate Agreements.** (a) The Client hereby appoints the Custodian as custodian of all Securities and cash at any time delivered to the Custodian to be held under this Agreement. The Custodian hereby accepts such appointment and agrees to establish and maintain one or more accounts in which the Custodian will hold Securities and cash as provided herein. Such accounts (each, an “Account,” and collectively, the “Accounts”) shall be in the name of the Client.

(b) Each Account established under this Agreement shall be maintained separately pursuant to the direction of the applicable Client. This Agreement shall be deemed to create a separate custody agreement with respect to each Client, the terms of each of which are as set forth herein, to the same extent as though each such Client had separately executed an identical agreement. The assets of, and income earned on, each Account shall remain the property of the relevant Client for which such account is maintained. The obligations of the several Clients’ hereunder are several and not joint. Nothing set forth in this Agreement shall render or be deemed or construed to render any Client liable to the Custodian for any action, inaction or obligation of any other Client. The Custodian shall at all times treat the Accounts as accounts maintained for separate entities hereunder including, but not limited to, for purposes of calculating or effecting any setoff or sale of securities pursuant to Section 5.3 hereof in satisfaction of amounts owing to the Custodian. Nothing set forth in this Agreement is intended or shall be construed to create a partnership, joint venture or other combination by or among any Client.

**1.3 Distributions.** The Custodian shall make distributions or transfers out of an Account pursuant to Written Instructions. In making payments to service providers pursuant to Written Instructions, the Client acknowledges that the Custodian is acting as a paying agent, and not as the payor, for tax information reporting and withholding purposes.

**1.4. Authorized Instructions.** The Custodian shall be entitled to rely upon any Oral or Written Instructions actually received by the Custodian and reasonably believed by the Custodian to be from an Authorized Person (“Authorized Instructions”). The Client agrees that an Authorized Person shall forward to the Custodian Written Instructions confirming Oral Instructions by the close of business of the same day that such Oral

Instructions are given to the Custodian. The Custodian may act on such Oral Instructions in extraordinary circumstances, but is not obligated to do so until Written Instructions are received. The Client agrees that the fact that Written Instructions confirming Oral Instructions are not received or that contrary Written Instructions are received by the Custodian shall in no way affect the validity or enforceability of transactions authorized by such Oral Instructions and effected by the Custodian. Notwithstanding any provision of this Agreement, it is acknowledged that unless otherwise directed by the Client in writing to the Custodian, Custodian shall only act upon Written Instructions of the Client constituting Client Written Instructions as defined under the definition of the term "Written Instructions" in Section 1.1 above.

**1.5 Authentication.** If the Custodian receives Written Instructions that appear on their face to have been transmitted by an Authorized Person via (i) facsimile, email, or other electronic method that is not secure, or (ii) secure electronic transmission containing applicable authorization codes, passwords or authentication keys, the Client understands and agrees that the Custodian cannot determine the identity of the actual sender of such Written Instructions and that the Custodian shall be entitled to conclusively presume that such Written Instructions have been sent by an Authorized Person. The Client shall be responsible for ensuring that only Authorized Persons transmit such Written Instructions to the Custodian and that all Authorized Persons treat applicable user and authorization codes, passwords and authentication keys with due care.

**1.6 Security Procedure.** The Client acknowledges and agrees that it is fully informed of the protections and risks associated with the various methods of transmitting Written Instructions to the Custodian and that there may be more secure methods of transmitting Written Instructions than the method selected by the sender. The Client agrees that the security procedures, if any, to be followed in connection with a transmission of Written Instructions provide to it a commercially reasonable degree of protection in light of its particular needs and circumstances.

**1.7 On-Line Systems.** If an Authorized Person elects to transmit Written Instructions through an on-line communication system offered by the Custodian, the use thereof shall be subject to any terms and conditions contained in a separate written agreement. If the Client or an Authorized Person elects, with the Custodian's prior consent, to transmit Written Instructions through an on-line communications service owned or operated by a third party, the Client agrees that the Custodian shall not be responsible or liable for the reliability or availability of any such service.

## SECTION 2 CUSTODY SERVICES

**2.1 Holding Securities.** Subject to the terms hereof, the Client hereby authorizes the Custodian to hold any Securities in registered form in the name of the Custodian or one of its nominees. Securities held for the Client hereunder shall be segregated on the Custodian's books and records from the Custodian's own property. If Client so requests, Custodian shall cause any such Securities to be reissued in the name of the Client. The Custodian shall be entitled to utilize Subcustodians and Depositories in

connection with its performance hereunder. Securities and cash held through Subcustodians shall be held subject to the terms and conditions of the Custodian's or a BNY Mellon Affiliate's agreements with such Subcustodians and shall at all times be identified on the books and records of Custodian as belonging to Client. Securities and cash deposited by the Custodian in a Depository will be held subject to the rules, terms and conditions of such Depository. Subcustodians may hold Securities in Depositories in which such Subcustodians participate.

The Custodian's or a BNY Mellon Affiliate's agreements with a Subcustodian for holding Client's assets will provide, among other things, that (i) such assets will not be subject to any right, charge, security interest, lien or claim of any kind in favor of such Subcustodian or its creditors except a claim for payment for their safe custody or administration; and (ii) the beneficial ownership of such assets will be freely transferable without the payment of money or value other than for safe custody or administration. Custodian shall be responsible for payment of all custody fees of Subcustodians. Where a Subcustodian deposits Securities with a Depository, Custodian will cause the Subcustodian to identify on such Subcustodian's records that the Securities deposited by Subcustodian at such Depository belong to the Client or Custodian as agent or otherwise in accordance with market practice.

Unless otherwise required by local law or practice or a particular subcustodian agreement, Securities deposited with Subcustodians will be held in a commingled account in the name of the Custodian or a BNY Mellon Affiliate for its clients. The Custodian shall identify on its books and records the Securities and cash belonging to the Client, whether held directly or indirectly through Depositories or Subcustodians. The Custodian shall not be liable for Losses arising out of the Client's holding of Securities or cash in any particular country, including but not limited to, Losses resulting from nationalization, expropriation or other governmental actions; regulation of the banking or securities industry; exchange or currency controls or restrictions, devaluations or fluctuations or currency redenomination; availability of Securities or cash or market conditions which prevent the transfer of property or the execution of Securities transactions or affect the value of property ("Country Risk Events").

Foreign Securities may be held abroad by Subcustodians selected by the Custodian in its discretion; provided, that, any such entity is an "Eligible Foreign Custodian" or "Qualified Foreign Bank" as defined in 17 C.F.R. Section 270.17f-5 promulgated pursuant to the Investment Company Act of 1940, as amended (the "Company Act") (notwithstanding that the Client is not a registered investment company within the meaning of the Company Act), unless the Custodian, in its reasonable business judgment, is not able to use a "Eligible Foreign Custodian" or a "Qualified Foreign Bank" as a Subcustodian in a particular jurisdiction because of the limited number or lack of suitability of Subcustodians. The Custodian shall make available to the Client through Custodian's online information reporting system a copy of the quarterly report concerning Subcustodians that is made available by the Custodian to those of Custodian's customers that are subject to the Company Act and/or for which the Custodian or a BNY Mellon Affiliate acts as a Foreign Custody Manager under Rule 17f-5.

**2.2 Subcustodians.** The Custodian shall exercise the Standard of Care and otherwise without negligence (based upon the Standard of Care) or willful misconduct in the selection or retention, monitoring and continued use of Subcustodians in light of prevailing rules, practices, procedures and circumstances in the relevant market (the “Required Care”).

With respect to any Losses incurred by the Client as a result of the acts or the failure to act by any Subcustodian (“Operational Losses,” which specifically excludes Losses arising out of or relating to Country Risk Events), the Custodian shall be liable for:

a. Operational Losses with respect to Securities or cash held by the Custodian with or through a BNY Mellon Affiliate; and

b. Operational Losses with respect to Securities or cash held by the Custodian with or through a Subcustodian (other than a BNY Mellon Affiliate) to the extent that such Operational Losses were caused by the failure on the part of the Custodian to exercise Required Care in the selection, retention, monitoring and continued use of any Subcustodian.

With respect to all other Operational Losses not covered by clauses (a) and (b) above, the Custodian shall take appropriate action to recover Operational Losses from such Subcustodian, and Custodian’s sole liability shall be limited to amounts recovered from such Subcustodian (exclusive of costs and expenses incurred by Custodian).

In addition, the Custodian shall be liable for repayment to the Client of cash credited to the Client’s Account and credited to the Client’s or the Custodian’s cash account at the Subcustodian that the Custodian is not able to recover from the Subcustodian (other than as a result of Country Risk Events).

**2.3 Depositories.** The Custodian shall have no liability whatsoever for the action or inaction of any Depository or for any Losses resulting from the maintenance of Securities with a Depository. The Custodian shall be liable to repay cash credited to the Client’s Account and credited to the Client’s, the Custodian’s or the Subcustodian’s account at such Depository (other than as a result of Country Risk Events).

**2.4 Agents.** The Custodian may appoint agents, including BNY Mellon Affiliates, on such terms and conditions as it deems appropriate to perform its services hereunder. Except as otherwise specifically provided herein, no such appointment shall discharge the Custodian from its obligations hereunder.

**2.5 Custodian Actions without Direction.** With respect to Securities held hereunder, the Custodian shall:

a. Receive income and other payments due to the Account;

b. Carry out any exchanges of Securities or other corporate actions not requiring discretionary decisions;

c. Facilitate access by the Client, its investment managers, and/or its designees to ballots or online systems to assist in the voting of proxies received for eligible positions of Securities held in the Account (excluding bankruptcy matters);

d. Forward to the Client, its investment managers, and/or its designees information (or summaries of information) that the Custodian receives from Depositories or Subcustodians concerning Securities in the Account (excluding bankruptcy matters);

e. Forward to the Client, its investment managers, and/or its designees an initial notice of bankruptcy cases relating to Securities held in the Account and a notice of any required action related to such bankruptcy cases as may be received by the Custodian. No further action or notification related to the bankruptcy case shall be required;

f. Endorse for collection checks, drafts or other negotiable instruments received on behalf of the Account; and

g. Execute and deliver, solely in its custodial capacity, certificates, documents or instruments incidental to the Custodian's performance under this Agreement.

**2.6 Custodian Actions with Direction.** The Custodian shall take the following actions in the administration of the Account only pursuant to Authorized Instructions:

a. Settle purchases and sales of Securities and process other transactions, including, without limitation, free receipts and deliveries;

b. Take actions necessary to settle transactions in connection with futures or options contracts, short-selling programs, foreign exchange or foreign exchange contracts, swaps and other derivative investments;

c. Deliver Securities in the Account if an Authorized Person advises the Custodian that the Client has entered into a separate securities lending agreement, provided that the Client executes such agreements as Custodian may reasonably require in connection with such arrangements; and

d. Invest available cash in a collective investment fund including a collective investment fund maintained by the Custodian or an affiliate of the Custodian for collective investment of employee benefit trusts or to deposit available cash in interest bearing accounts in the banking department of the Custodian or an affiliated banking organization. To the extent that any investment is made in any such collective investment fund, the Client hereby represents and confirms that the Client is a governmental plan within the meaning of Section 414(d) of the Code and the declaration of trust of said collective investment fund and the trust thereby created shall be a part of this Agreement and of the governmental plan. The Client agrees to notify the Custodian immediately in the event the Account ceases to be tax exempt. The Client expressly understands and agrees that any such collective investment fund may provide for the lending of its securities by the collective investment fund trustee and that such collective investment fund trustee will receive compensation for the lending of securities that is separate from any compensation

of the Custodian hereunder, or any compensation of the collective investment fund trustee for the management of such fund. The Custodian is authorized to invest in a collective fund which invests in The Bank of New York Mellon Corporation stock in accordance with the terms and conditions of the Department of Labor Prohibited Transaction Exemption 95-56 (the "Exemption") granted to Mellon Bank, N.A. and its affiliates and to use a cross-trading program in accordance with the Exemption. The Client acknowledges receipt of the notice entitled "Cross-Trading Information," a copy of which is attached to this Agreement as Exhibit A.

**2.7 Foreign Exchange Transactions.** Any foreign exchange transaction effected by the Custodian in connection with this Agreement may be entered with the Custodian or a BNY Mellon Affiliate acting as a principal or otherwise through customary channels. The Client may issue standing Written Instructions with respect to foreign exchange transactions, but the Custodian may establish rules or limitations concerning any foreign exchange facility made available to the Client. For the avoidance of doubt and notwithstanding any other provision hereof, neither the Custodian nor any BNY Mellon Affiliate is, or shall be, required to enter into any foreign exchange transaction as a principal and/or counter-party to or with the Client (or any Authorized Person of the Client) pursuant to this Agreement. Foreign exchange transactions, if any, by and between the Custodian or any BNY Mellon Affiliate and the Client (or any Authorized Person of the Client) shall be entered into, if at all, only upon such terms as may be separately and specifically negotiated between the parties hereto.

### SECTION 3 – CORPORATE ACTIONS

**3.1 Notification.** The Custodian shall notify the Client or its designee of rights or discretionary corporate actions as promptly as practicable under the circumstances, provided that the Custodian in its capacity as custodian has actually received notice of such right or discretionary corporate action from the relevant Subcustodian or Depository. Without actual receipt by the Custodian in its capacity as custodian, the Custodian shall have no liability for failing to so notify the Client.

**3.2 Direction.** Whenever there are voluntary rights that may be exercised or alternate courses of action that may be taken by reason of the Client's ownership of Securities, the Client or its designee shall be responsible for making any decisions relating thereto and for directing the Custodian to act. In order for the Custodian to act, it must receive Authorized Instructions using the Custodian generated form or clearly marked as instructions addressed as the Custodian may from time to time request, by such time as the Custodian shall advise the Client or its designee. If the Custodian does not receive Authorized Instructions by such deadline, the Custodian shall not be liable for failure to take any action relating to or to exercise any rights conferred by such Securities.

**3.3 Partial Redemptions, Payments, Etc.** The Custodian shall promptly advise the Client or its designee upon its notification of a partial redemption, partial payment or other action with respect to a Security affecting fewer than all such Securities held within the Account. If the Custodian, any Subcustodian or Depository holds any

Securities affected by one of the events described, the Custodian, the Subcustodian or Depository may select the Securities to participate in such partial redemption, partial payment or other action in any non-discriminatory manner that it customarily uses to make such selection.

**3.4 Proxies.** The Custodian shall facilitate access by the Client or its designee to ballots or online systems to assist in the voting of proxies received for eligible positions of Securities held in the Accounts (excluding bankruptcy matters) and will support proxy services working with the Client's separately-engaged voting agent, if any. Custodian shall, or shall cause its nominee to, execute and deliver to the Client or if directed by the Client, a designee, as the case may be, proxies relating to Securities in the Account registered in the name of such Custodian or its nominee, as the case may be, but without indicating the manner in which such proxies are to be voted. Custodian or its agent shall, upon receipt of any securities proxies with respect to the Securities held hereunder, promptly transmit them to the Client or if directed by the Client, a designee, as the case may be, or notify the Client or if directed by the Client, a designee, as the case may be, of the receipt of such proxies. Neither Custodian nor its Subcustodians or agents shall vote upon, execute any form of proxy-to-vote thereon, give any consent or take any action with respect thereto except upon receipt of Authorized Instructions relative thereto. The beneficial owner may return proxy materials to Custodian or its designated agent for such purposes or directly to the issuer of the Securities or its agent.

#### SECTION 4 – SETTLEMENT OF TRADES

**4.1 Trading Instructions.** Promptly after each purchase or sale of Securities by the Client, an Authorized Person shall deliver to the Custodian Authorized Instructions specifying all information necessary for the Custodian to settle such purchase or sale. For the purpose of settling purchases of Securities, the Client shall provide the Custodian with sufficient immediately available funds for all such transactions by such time and date as conditions in the relevant market dictate.

**4.2 Contractual Settlement and Income.** The Custodian may, as a matter of bookkeeping convenience, credit the Account with the proceeds from the sale, redemption or other disposition of Securities or interest, dividends or other distributions payable on Securities prior to its actual receipt of final payment therefor. All such credits shall be conditional until the Custodian's actual receipt of final payment and may be reversed by the Custodian to the extent that final payment is not received. Payment with respect to a transaction will not be "final" until the Custodian shall have received immediately available funds that under applicable local law, rule or practice are irreversible and not subject to any security interest, levy or other encumbrance, and that are specifically applicable to such transaction.

**4.3 Trade Settlement.** Transactions will be settled using practices customary in the jurisdiction or market where the transaction occurs. The Client understands that when the Custodian is instructed to deliver Securities against payment, delivery of such Securities and receipt of payment therefor may not be completed simultaneously. The

Client assumes full responsibility for all risks involved in connection with the Custodian's delivery of Securities pursuant to Authorized Instructions in accordance with local market practice except to the extent, if any, of any losses resulting from the negligence or willful misconduct of the Custodian.

## SECTION 5 - DEPOSITS AND ADVANCES

**5.1 Deposits.** The Custodian may hold cash in Accounts or may arrange to have such cash held by a depository institution that is a BNY Mellon Affiliate or by a Subcustodian. Where cash is on deposit with the Custodian, a Subcustodian, or a BNY Mellon Affiliate, it will be subject to the terms of this Agreement and such deposit terms and conditions as may be issued by the Custodian or a BNY Mellon Affiliate or a Subcustodian, to the extent applicable, from time to time, including rates of interest and deposit account access.

**5.2 Sweep and Float.** Cash may be swept as directed by the Client or its investment manager to investment vehicles offered by the Custodian or to other investment vehicles. Cash may be uninvested when it is received or reconciled to an Account after the deadline to be swept into a target vehicle, or when held for short periods of time related to transaction settlements. The Client acknowledges that, as part of the Custodian's compensation, the Custodian will earn interest on cash balances held by the Custodian, including disbursement balances and balances arising from purchase and sale transactions, as disclosed in the Custodian's float policy.

**5.3 Overdrafts and Indebtedness.** The Custodian may, in its sole discretion, advance funds in any currency hereunder. If an overdraft occurs in an Account (including, without limitation, overdrafts incurred in connection with the settlement of securities transactions, funds transfers or foreign exchange transactions) or if the Client is for any other reason indebted to the Custodian in connection with the services provided hereunder (each an "Advance"), the Client agrees to repay the Custodian on demand or upon becoming aware of the amount of the Advance, plus accrued interest at a rate then charged by the Custodian to its institutional custody clients in the relevant currency provided however, that in the event that any Advance, is not reimbursed by the Client to the Custodian when requested, the Custodian shall have a right of setoff against the Account to or for which such Advance was made for such amounts and be entitled to collect from the Account to or for which such Advance was made sufficient cash for reimbursement, and if such cash is insufficient, upon not less than three Business Days' notice thereof to the Client, to sell the Securities in the Account to or for which such Advance was made to the extent necessary to obtain reimbursement. Any interest accrued on any Advance hereunder shall be charged to the subaccount of the Account to or for which such Advance was made that caused them to arise (e.g., a specific investment manager). The Client represents that it owns the Securities in the Account free and clear of all liens, claims, and security interests, (other than specific liens granted by statute).

## SECTION 6 TAXES, REPORTS AND RECORDS

**6.1 Tax Obligations** The Client shall be liable for all taxes, assessments, duties and other governmental charges, including interest and penalties, with respect to any cash and Securities held on behalf of the Client and any transaction related thereto. To the extent that the Custodian has received relevant and necessary information with respect to the Account, the Custodian shall perform the following services with respect to Tax Obligations:

a. The Custodian shall, upon receipt of sufficient information, file claims for exemptions or refunds with respect to withheld foreign (non-United States) taxes in instances in which such claims are appropriate;

b. The Custodian shall withhold appropriate amounts, as required by United States tax laws, with respect to amounts received on behalf of nonresident aliens upon receipt of Written Instructions; and

c. The Custodian shall provide to the Client such information received by the Custodian that could, in the Custodian's reasonable belief, assist the Client or its designee in the submission of any reports or returns with respect to Tax Obligations. An Authorized Person shall inform the Custodian in writing as to which party or parties shall receive information from the Custodian.

**6.2 Pricing and Other Data.** In providing Market Data related to the Account in connection with this Agreement, the Custodian is authorized to use Data Providers. The Custodian may follow Authorized Instructions in providing pricing or other Market Data, even if such instructions direct the Custodian to override its usual procedures and Market Data sources. The Custodian shall be entitled to rely without inquiry on all Market Data (and all Authorized Instructions related to Market Data) provided to it, and the Custodian shall not be liable for any Losses incurred as a result of Market Data that contains errors or that is inaccurate or incomplete. The Client acknowledges that certain pricing or valuation information may be based on calculated amounts rather than actual market transactions and may not reflect actual market values, and that the variance between such calculated amounts and actual market values may be material. The Custodian shall not be required to inquire into the pricing of any Securities or other assets even though the Custodian may receive different prices for the same Securities or assets. Market Data may be the intellectual property of the Data Providers, which may impose additional terms and conditions upon the Client's use of the Market Data. The additional terms and conditions can be found on the Data Terms Website. To the extent not prohibited or limited by Kentucky law, the Client agrees to those terms as they are posted in the Data Terms Website from time to time. Certain Third Party Service Providers may not utilize the Client's directed price due to system constraints or differing data sources. Performance measurement and analytic services may use different data sources than those used by the Custodian to provide Market Data for the Account, which may result in differences between custodial reports and performance measurement and analytic reports.

**6.3 Statements and Reports.** Custodian shall make available daily transaction reports and statements. In addition, the Custodian shall make available to the Client a

monthly report of all transfers to or from the Accounts and a statement of all holdings in the Accounts as of the last Business Day of each month. The Client may elect to receive certain information electronically through the Internet to an email address specified by it for such purpose. By electing to use the Internet for this purpose, the Client acknowledges that such transmissions are not encrypted and therefore are not secure. The Client further acknowledges that there are other risks inherent in communicating through the Internet such as the possibility of virus contamination and disruptions in service, and agrees that the Custodian shall not be responsible for any loss, damage or expense suffered or incurred by the Client or any person claiming by or through the Client as a result of the use of such methods.

**6.4 Review of Reports.** If, within one hundred twenty (120) days after the Custodian makes available to the Client a statement with respect to the Accounts, the Client has not given the Custodian written notice of any exception or objection thereto, the statement shall be deemed to have been approved, and in such case, the Custodian shall not be liable for any claims concerning such statements for any matters in such statement which could have been discovered by reasonable efforts by the Client or its investment manager in reviewing and reconciling such statements. provided; however, that nothing set forth in this Section is intended or shall be construed to relieve or excuse the Custodian of any liability for negligence or willful misconduct to which it is expressly otherwise subject pursuant to the provisions of this Agreement and provided further that in the event an error is discovered more than 120 days after the statement is provided to the Client, the Custodian shall be responsible to adjust the Account accordingly, but shall not be obligated to revise the statement that reflects the error.

**6.5 Inspection of Books and Records.** The Client shall have the right, at its own expense and with reasonable prior written notice to the Custodian, to inspect the Custodian's books and records directly relating to the Account during normal business hours or to designate its auditors or accountants to make such inspection.

**6.6 Required Disclosure.** With respect to Securities that are registered under the Securities Exchange Act of 1934, as amended (the "Exchange Act") or that are issued by an issuer registered under the Investment Company Act of 1940, as amended, Section 14(b) of the Exchange Act and Rule 14b-2 promulgated thereunder require the Custodian to disclose to issuers of such Securities, upon their request, the name, address and securities position of the Custodian's clients who are "beneficial owners" (as defined in the Exchange Act) of the issuer's Securities, unless the beneficial owner objects to such disclosure. The Exchange Act defines a "beneficial owner" as any person who has or shares the power to vote a security (pursuant to an agreement or otherwise) or who directs the voting of a security. The Custodian shall contact the Client or (if the Client has appointed an investment manager) the investment manager with respect to relevant Securities to make the decision whether it objects to the disclosure of the beneficial owner's name, address and securities position to any U.S. issuer that requests such information pursuant to the Exchange Act.

With respect to Securities issued outside the United States, the Custodian shall

disclose information required by any Depository, the laws or regulations of the relevant jurisdiction, rules of the relevant stock exchange or organizational documents of an issuer. The Custodian is also authorized to supply any information regarding the Accounts that is required by any law, regulation or rules now or hereafter in effect. The Client agrees to supply the Custodian with any required information if it is not otherwise reasonably available to the Custodian.

## **SECTION 7 – PROVISIONS REGARDING CUSTODIAN**

### **7.1 Standard of Care.**

(a) In performing its administrative and custodial duties under this Agreement, the Custodian shall exercise the standard of care and diligence that a professional custodian would observe in these affairs (“Standard of Care”). Such duties and responsibilities include but are not limited to safekeeping of assets, processing of corporate actions, trade settlement, posting of income and other receipts, reporting of transactions, and reporting of prices. The Custodian does not have discretionary investment management authority or render investment advice for a fee pursuant to this Agreement.

(b) Nevertheless, to the extent that, in performing its duties hereunder, the Custodian exercises discretionary authority that would, under applicable law, impose upon the Custodian obligations as a fiduciary with respect to the Accounts, it shall exercise such discretionary authority with the care and skill required of such fiduciary to the extent required under such applicable law.

(c) With respect to foreign exchange transactions between the Client and the Custodian or a BNY Mellon Affiliate, the Client acknowledges that the Custodian or such BNY Mellon Affiliate acts only as a principal counterparty on its own behalf and not as a fiduciary or agent for the Client, an investment manager of the Client or the relevant Account.

**7.2 Duties.** The duties of the Custodian shall only be those specifically undertaken pursuant to this Agreement and shall be subject to such other limits on liability as are set out herein.

### **7.3 Limitation on Liability.**

a. The Custodian shall not be liable for Losses except to the extent such Losses result from the Custodian’s negligence, willful misconduct or failure to perform its obligations as required under this Agreement which failure is the result of the Custodian’s failure to adhere to the Standard of Care and is not otherwise excused pursuant to the terms of this Agreement;

b. The Custodian shall not be liable to, or be required to indemnify, the Client for indirect, consequential or special damages arising in connection with this Agreement even if the Custodian has been advised of the possibility of such damages;

c. The Custodian shall not be responsible for the title, validity or genuineness of any Securities or evidence of title thereto received by it or delivered by it pursuant to this Agreement or for Securities held hereunder being freely transferable or deliverable without encumbrance in any relevant market;

d. The Custodian shall not be responsible for the failure to receive payment of, or the late payment of, income or other payments due to the Account;

e. The Custodian shall have no duty to take any action to collect any amount payable on Securities in default or if payment is refused after due demand and presentment;

f. The Custodian shall have no duty or responsibility to inquire into, make recommendations, supervise, or determine the suitability of any transactions affecting any Account and shall have no liability with respect to the Client's or an Authorized Person's decision to invest in Securities or to hold cash in any currency;

g. The Custodian shall have no responsibility if the rules or procedures imposed by Depositories, exchange controls, asset freezes or other laws, rules, regulations or orders at any time prohibit or impose burdens or costs on the transfer of Securities or cash to, by or for the account of the Client; and

h. The Custodian shall have no liability for any Losses arising from the insolvency of any Person, including but not limited to a Subcustodian, Depository, broker, bank, and a counterparty to the settlement of a transaction or to a foreign exchange transaction, except as provided for repayment of cash as and to the extent provided in Sections 2.2 and 2.3 above.

**7.4 Remedial Action.** Where an error or omission has occurred under this Agreement, the Custodian shall take such remedial action as it considers appropriate under the circumstances such that the Client is put in the same or equivalent position as it would have been in if the error or omission had not occurred.

**7.5 Force Majeure.** Notwithstanding anything in this Agreement to the contrary, the Custodian shall not be responsible or liable for any failure to perform under this Agreement or for any Losses to the Account resulting from any event beyond the reasonable control of the Custodian provided however that the Custodian shall have established and at all times maintain business continuation and disaster recovery policies and procedures which are reasonably designed to comply with applicable law and regulations and the requirements of Custodian's regulators and for the minimization of recovery time and Custodian shall use its best efforts to resume performance as soon as practicable under the prevailing circumstances. This Section shall survive the termination of this Agreement.

**7.6 Fees.** The Client shall pay to the Custodian the fees and charges set forth on Exhibit C hereto or as may be specifically otherwise agreed upon in writing from time to time and, in the absence of an agreed rate, such other fees and charges at the Custodian's standard rates charged to its institutional clients for such services as may be applicable.

The Client shall also reimburse the Custodian for out-of-pocket expenses that are a normal incident of the services provided hereunder. Without limiting the foregoing, extraordinary expenses incurred by the Custodian in connection with this Agreement including, without limitation, travel expenses, consultant's fees, if any, and similar "non-operational" expenses shall be subject to the prior notice to, and approval by, the Client.

**7.7 Indemnification.** The Custodian shall indemnify and hold harmless the Client from and against all Losses, including reasonable counsel fees and expenses, relating to or arising out of the Custodian's negligence, willful misconduct or failure to perform its obligations as required under this Agreement which failure is the result of the Custodian's failure to adhere to the Standard of Care and is not otherwise excused pursuant to the terms of this Agreement. The parties agree that the foregoing shall include reasonable counsel fees and expenses incurred by the Client in its successful defense of claims that are asserted by the Custodian against the Client relating to or arising out of the Custodian's negligence or willful misconduct under this Agreement. The provisions of this Section 7.7 shall survive the termination of this Agreement.

**7.8 RFP Response.** The Custodian represents and warrants to the Client that its written proposal, submitted in response to the RFP, is accurate in all respects as of the time made. In connection therewith, the Custodian affirms that services it provides hereunder will, at a minimum, be as comprehensive as the Scope of Services described in Part II of the RFP.

**7.9 Confidentiality**

a. In performing the services set forth under this Agreement, the parties may exchange Confidential Information. The term "Confidential Information" means non-public information disclosed by a party to the other party in connection with the services under this Agreement, including, but not limited to: business secrets, business information, business plans, financial and pricing information, business practices, financial statements and reports, project specifications, projections, schematics and drawings, trade secrets, processes, materials, customer lists, supplier lists, sales volume, territories, markets, current, future or potential acquisitions, technical, production, operational, marketing or sales information or any and all other financial, business, organizational and technological information related to a party's business and/or organization, whether or not such information is specifically marked "Confidential" or other similar legend. "Confidential Information" shall include all writings, notes, memoranda, media (collectively, "Notes") made by a party or its employees, agents or servants with respect to such Confidential Information. With respect to BNY Mellon, "Confidential Information" shall also include Personal Data. "Personal Data" means information or data that alone or together with any other information relates to an identified or identifiable natural person or data that is considered to be personal data as defined under applicable law.

b. Except with respect to Personal Data, the term "Confidential Information" shall not include information which: (a) is or becomes demonstrably in the public domain;

(b) at the time of receipt was already rightfully possessed by the receiving party; (c) is or becomes available on a non-confidential basis (provided the source is not known to be itself bound by an applicable, effective confidentiality or similar agreement); (d) had entered or does enter the public domain without any breach or fault of a party; (e) is required to be disclosed by a party's applicable regulators, applicable law, rule or regulation, by valid legal process or by order or subpoena issued by a court of competent jurisdiction (collectively, "Law"); or (f) is developed independently by either Party as evidenced by the developing party's documentation made in the ordinary course of business. Except where (i) the disclosure is to a party's regulators in the ordinary course (in which case no notice need be provided by such party), (ii) notice is prohibited by Law; or (iii) advance notice is impracticable because the disclosure must be made within a short timeframe (including, without limitation, in order to comply with the provisions of the Kentucky Information Disclosure Laws (as defined below) to the extent applicable as determined in good faith by such party) the party required to make such disclosure that is required by Law shall, if feasible, provide reasonable advanced notice to the other party so as to permit such other party to take measures to protect its Confidential Information (e.g., by seeking a protective order).

c. The Custodian hereby acknowledges that the Client is a public agency subject to (i) Kentucky's public record law (Kentucky Revised Statutes sections 61.870 to 61.884, the "Open Records Act"), which provide generally that all records relating to a public agency's business are open to public inspection and copying unless exempted under the Open Records Act and (ii) Kentucky Revised Statutes sections 61.645 (19)(l) and (20) (the "Document Disclosure Law"), which provides generally that all contracts or offering documents for services, goods, or property purchased or utilized by the Client shall be made available to the public unless exempt under the Document Disclosure Law (the Open Records Act and Document Disclosure Law, collectively, the "Kentucky Information Disclosure Laws"). Notwithstanding any provision in this Agreement to the contrary, the Custodian hereby agrees that (i) the Client will, to the extent required by the Kentucky Information Disclosure Laws treat all information received from the Custodian as open to public inspection under the Kentucky Information Disclosure Laws unless such information is exempt from disclosure under the Kentucky Information Disclosure Laws, and (ii) the Client will not be deemed to be in violation of any provision of this Agreement (including this Section 7.9) if the Client discloses or makes available to the public (e.g., via Client's website) any information regarding the Custodian to the extent required pursuant to or under the Kentucky Information Disclosure Laws; provided that, to the extent permitted by law, the Client shall notify the Custodian in writing in the case of any request for disclosure of this Agreement which is not redacted in accordance with (e) below or any other information or material relating to the business of the Custodian and provided by the Custodian and marked by the Custodian as "Confidential" (or with words of similar import) pursuant to the Kentucky Information Disclosure Laws so that the Custodian may, at its own expense, seek an appropriate exemption to such disclosure as and to the extent permitted under any Kentucky Information Disclosure Law.

d. The parties may disclose the Confidential Information to employees, consultants, employees of affiliates and attorneys on a "need to know" basis, or as

otherwise required by law. Without limiting the generality of the foregoing Client authorizes the Custodian to disclose confidential information to any Subcustodian, Depository, securities exchange, broker, proxy solicitor or issuer, or other third party to the extent that such disclosure is required in connection with the provision of services under this Agreement.

e. The Custodian agrees the Client may disclose a version of this Agreement from which (i) Exhibit C (Fees); and (ii) such other matters as the Client may deem appropriate have been redacted to the extent permitted by the Document Disclosure Law.

f. The Bank of New York Mellon Corporation is a global financial organization that provides services to clients through its affiliates and subsidiaries in multiple jurisdictions (the “BNY Mellon Group”). The BNY Mellon Group may centralize functions, including audit, accounting, risk, legal, compliance, sales, administration, product communication, relationship management, storage, compilation and analysis of customer-related data, and other functions (the “Centralized Functions”) in one or more affiliates, subsidiaries and third-party service providers. Notwithstanding any other provision hereof, solely in connection with the Centralized Functions, (i) the Client consents to the disclosure of, and authorizes the Custodian to disclose, information regarding the Client and its accounts (“Customer-Related Data”) to the BNY Mellon Group and to its third-party service providers who are subject to confidentiality obligations with respect to such information and (ii) the Custodian may store the names and business addresses of the Client’s employees on the systems or in the records of the BNY Mellon Group or its service providers. In addition, the BNY Mellon Group may aggregate Customer-Related Data on an anonymized basis with other data collected and/or calculated by the BNY Mellon Group, for Custodian’s and its Affiliates’ reporting (including regulatory reporting), research, product development and marketing purposes, provided that the BNY Mellon Group shall not distribute or disclose the aggregated data in any format that identifies the Client or identifies the Customer-Related Data with the Client.

**7.10 Sanctions.** (a) Throughout the term of this Agreement, the Client shall implement and maintain policies and/or measures reasonably designed to ensure that (i) incoming or outgoing assets or transactions of the Client do not violate applicable laws including Sanctions (ii) neither the Client nor any of its directors, officers, or employees is an individual or entity that is, or is owned or controlled by an individual or entity that is: (A) the target of Sanctions, or (B) located, organized or resident in a country or territory that is, or whose government is, the target of Sanctions and (iii) the Accounts are not used, directly or indirectly, in any manner that would result in a violation of Sanctions.

(b) The Client will promptly provide to the Custodian such information as the Custodian reasonably requests in connection with the matters referenced in this Section 7.10, including information regarding the Accounts, the assets held or to be held in the Accounts, the source thereof, and the identity of any individual or entity having or claiming an interest therein (excluding the identities of Client’s beneficial owners, beneficiaries, executives and board members unless required by applicable law including Sanctions). The Custodian may decline to act or provide services in respect of any Account, and take

such other actions as it, in its reasonable discretion, deems necessary or advisable, in connection with the matters referenced in this Section 7.10. If the Custodian declines to act or provide services as provided in the preceding sentence, except as otherwise prohibited by applicable law or official request, the Custodian will inform the Client as soon as reasonably practicable.

**7.11 Representations and Warranties.**

a. The Custodian represents and warrants to the Client that:

(i) The Custodian is duly organized, validly existing and in good standing under the laws of the State of New York;

(ii) The Custodian has all necessary power and authority to enter into and perform its obligations under this Agreement, and has duly executed this Agreement so that its terms constitute valid, binding and enforceable obligations of Custodian;

(iii) Neither the execution of this Agreement nor the acts contemplated hereunder will violate any legislative, regulatory or judicial act or order applicable to the Custodian;

(iv) To the extent not prohibited by applicable law, the Custodian shall promptly advise the Client in writing of the occurrence of any event or condition which, in the reasonable judgment of Custodian, has or will have a material adverse effect upon the Custodian's ability to provide the services hereunder.

b. The Client represents and warrants to the Custodian that:

(i) The Client has all necessary power and authority to enter into and perform its obligations under this Agreement, and has duly executed this Agreement so that its terms constitute valid, binding and enforceable obligations of Client;

(ii) Neither the execution of this Agreement nor the acts contemplated hereunder will violate any legislative, regulatory or judicial act or order applicable to the Client; and

(iii) The individual executing this Agreement on behalf of the Client has the requisite authority to bind the Client to this Agreement.

**SECTION 8 – CLASS ACTIONS**

**8.1 Notification.** When the Custodian receives a notice of settlement from the administrator of a class action, relevant information concerning the settlement will be provided to the Client or its designee, by Account, as promptly as practicable under the circumstances, but only where the Client Account contains records of transactions and

positions covered by the settlement. Notice will not be given if records of relevant transactions and positions are not found in Account records maintained by the Custodian, nor can the Custodian undertake to advise the Client if such records do not encompass the entire period covered by a settlement. Where a settlement involves a time period, in whole or in part, outside of the Custodian's period of service under this Agreement, it is the Client's responsibility to provide Custodian with supplemental records necessary to make or complete a filing in such form as the Custodian may require, by such deadline as Custodian may set to file a claim.

The Custodian presently continues to provide notice of class actions to former clients to the extent holdings and transaction records are available, provided that a current address for notice is on file with the Custodian. If this continuing service is ever terminated, Custodian will attempt to notify former clients based on the notice address on file with the Custodian.

The Custodian shall also forward to the Client any notice of other group ("opt in") litigation relating to Securities held in the Account as received by the Custodian. No further action or notification related to such opt in litigation shall be required.

**8.2 Filings and Directed Actions.** (a) Unless the Custodian is given timely direction by the Client or its designee that it will file claims directly or that it wishes to opt out of an action, where permitted, the Custodian will file a claim or claims on behalf of each Account based on relevant transaction and position records maintained by the Custodian (or where supplemental records have been timely provided in proper form). Client delegates the monitoring, reporting and filing of all proofs of claim for class actions in connection to securities held in the Accounts to the Custodian. Custodian shall maintain a record of all such litigation documentation received by Custodian and shall take whatever action is necessary to include the Client in the class, unless otherwise instructed by Client. The Custodian shall timely submit all claims on Client's behalf which the Custodian has been informed or reasonably believes Client is a member of the class.

(b) **Monitoring Support.** If the Client uses the services of a third-party securities litigation monitoring firm ("Monitors"), the Custodian will make available to the Monitors access to such of the Client's current custody data through the Custodian's online information reporting system as may be requested and authorized by the Client subject to Custodian's electronic access terms and conditions contained in a separate written agreement of the Monitors.

**8.3 Receipt of Settlement Funds; Charges.** If a claim is approved, relevant Client Accounts will be credited with settlement funds when received, net of the Custodian's applicable service charge. (Funds will be sent to former clients net of the service charge based on the account level standing instruction on file with the Custodian.)

**8.4 Records and Changes to Class Action Service.** Information concerning all class action filing deadlines (whether or not deemed applicable to the Client), and the status of pending claims is available on Workbench®, together with a more detailed

description of the service provided. The Custodian reserves the right to amend or terminate class action services upon notice. Changes to the services will be communicated via such method(s) as are used for clients generally

## **SECTION 9 – AMENDMENT; TERM; TERMINATION; ASSIGNMENT**

**9.1 Amendment.** This Agreement may be amended only by written agreement between the Client and the Custodian.

**9.2 Term; Termination.** This Agreement shall be for a term of five (5) years commencing on July 1, 2019 and ending June 30, 2024 (the “Term”) unless extended by written agreement of the Client and the Custodian. The Client may terminate this Agreement at any time by giving to the Custodian a notice in writing specifying the date of such termination, which shall be not less than thirty (30) days after the date of such notice. The Custodian may terminate this Agreement at any time by giving to the Client a notice in writing specifying the date of such termination, which shall be not less than ninety (90) days after the date of such notice. Upon termination hereof, the Client shall pay to the Custodian such compensation as may be due to Custodian, and shall likewise reimburse the Custodian for other amounts payable or reimbursable to the Custodian hereunder. Custodian shall follow Authorized Instructions concerning the transfer of custody of records, Securities and other items as the Client shall give; provided that the Custodian shall have no liability for shipping and insurance costs associated therewith. If any Securities or cash remain in any Account after termination, the Custodian may deliver to the Client or its successor custodian such Securities and cash. Except as otherwise provided herein, all obligations of the parties to each other hereunder shall cease upon termination of this Agreement.

**9.3 Successors and Assigns.** (a) This Agreement is not assignable by either party without the prior written consent of the other, except that (i) the Custodian may assign this Agreement to any BNY Mellon Affiliate, and (ii) any entity, that shall by merger, consolidation, purchase, or otherwise, succeed to substantially all the institutional custody business of the Custodian shall, upon such succession and without any appointment or other action by the Client, be and become successor custodian hereunder. The Custodian agrees to provide notice of such successor custodian to the Client. Any assignment in violation of this provision shall be voidable at the option of the non-assigning party. This Agreement shall be binding upon, and inure to the benefit of, the Client and the Custodian and their respective successors and permitted assigns.

(b) Notwithstanding anything herein to the contrary, in the event that the Custodian becomes subject to a proceeding under a U.S. special resolution regime, the transfer of this Agreement (and any interest and obligation in or under, and any property securing, this Agreement) from the Custodian will be effective to the same extent as the transfer would be effective under the U.S. special resolution regime if this Agreement (and any interest and obligation in or under, and any property securing, the Agreement) were governed by the laws of the United States or a state of the United States; and, in the event that the Custodian or any affiliate becomes subject to a proceeding under a U.S. special

resolution regime, default rights with respect to the Agreement that may be exercised against the Custodian are permitted to be exercised to no greater extent than the default rights could be exercised under the U.S. special resolution regime if the Agreement were governed by the laws of the United States or a state of the United States.

## SECTION 10 – ADDITIONAL PROVISIONS

**10.1 Non-Custody Assets.** As an accommodation to the Client, the Custodian may provide consolidated recordkeeping services pursuant to which the Custodian reflects on statements securities and other assets not held by, or under the control of, the Custodian. Non-Custody Assets shall be designated on Custodian’s books as “shares not held” or by other similar characterization. The Client acknowledges and agrees that it shall have no security entitlement against the Custodian with respect to Non-Custody Assets, that the Custodian shall rely, without independent verification, on information provided by the Client or its designee regarding Non-Custody Assets (including but not limited to positions and market valuations), and that the Custodian shall have no responsibility whatsoever with respect to Non-Custody Assets or the accuracy of any information maintained on the Custodian’s books or set forth on account statements concerning Non-Custody Assets.

**10.2 Appropriate Action.** The Custodian is hereby authorized and empowered, in its sole and reasonable discretion, to take any action with respect to an Account that it deems necessary or appropriate in carrying out the purposes of this Agreement and which is not in violation of any provision of this Agreement.

**10.3 Governing Law.** This Agreement shall be construed in accordance with and governed by the substantive laws of the Commonwealth of Kentucky without regard to its conflict of laws provisions. The parties consent to the jurisdiction of the Franklin County Circuit Court in the Commonwealth of Kentucky in connection with any dispute hereunder. Venue for any action, suit, or proceeding arising out of or relating to this Agreement shall be in the Franklin County Circuit Court in the Commonwealth of Kentucky.

**10.4 Authority; Binding Agreement.** Each party represents and warrants to the other that it has full authority to enter into this Agreement upon the terms and conditions hereof and that the individual executing this Agreement on its behalf has the requisite authority to bind such party to this Agreement, and that the Agreement constitutes a binding obligation of such party enforceable in accordance with its terms.

**10.5 USA PATRIOT Act.** The Client hereby acknowledges that the Custodian is subject to federal laws, including the Customer Identification Program (“CIP”) requirements under the USA PATRIOT Act and its implementing regulations, pursuant to which the Custodian must obtain, verify and record information that allows the Custodian to identify the Client. Accordingly, prior to opening an Account hereunder, the Custodian will ask the Client to provide certain information including, but not limited to, the Client’s name, physical address, tax identification number and other information that will help the Custodian to identify and verify the Client’s identity, such as constituent or organizational

documents, or other pertinent identifying information. The Client agrees that the Custodian cannot open an Account hereunder unless and until the Custodian verifies the Client's identity in accordance with the Custodian's CIP.

**10.6 Notices.** Notices shall be in writing and shall be addressed to the Custodian or the Client at the address set forth on the signature page or such other address as either party may designate in writing to the other. All notices shall be effective upon receipt.

**10.7 Entire Agreement.** This Agreement, the Exhibits and any related fee agreement constitute the entire agreement with respect to the matters dealt with herein, and supersede and replace the Original Agreement and all previous agreements, whether oral or written, and documents with respect to such matters.

**10.9 Necessary Parties.** All of the understandings, agreements, representations and warranties contained herein are solely for the benefit of the Client and the Custodian, and there are no other parties who are intended to be benefited by this Agreement.

**10.10 Execution in Counterparts.** This Agreement may be executed in any number of counterparts, each of which shall be deemed an original, and said counterparts when taken together shall constitute but one and the same instrument and may be sufficiently evidenced by one set of counterparts.

**10.11 Conflict of Interest.**

a. Custodian is not and will not be violating any conflict of interest statutes (KRS 121.056 or any other applicable statute) or principle by the performance of this Agreement. Custodian shall not knowingly engage directly or in any financial or other transaction with a trustee or employee of Client which would violate standards of the Executive Branch Ethics provisions, as set forth in KRS Chapter 11A. Without limiting the foregoing:

b. No fees, bonuses or other compensation, have been paid by or on behalf of the Custodian to any placement agent, finder or other individual or entity in connection with the procurement of this Agreement.

c. Neither the Custodian nor any BNY Mellon Affiliate has been convicted of bribery or attempting to bribe an officer or employee of the Commonwealth of Kentucky, nor have any of them made an admission of guilt of such conduct.

d. The Custodian agrees to provide Client notice within five (5) business days if it has actual knowledge that any of the provisions or (a) through (c) of this Section 10.11 are not true and accurate, either on the date of this Agreement or on any subsequent date.

**10.12 Certain Notices.** To the extent that any of the following events are reasonably expected by Custodian to have a material adverse impact upon the ability of the Custodian to provide the services contemplated by this Agreement, the Custodian shall notify the Client in writing thereof within five business days from the time Custodian

becomes aware that such event has occurred: (i) any changes in the senior officers of the Custodian responsible for the services to be provided under this Agreement; or (ii) the issuance of any final judgment or final judicial adjudication against the Custodian in any court of competent jurisdiction.

**10.13 Insurance.** The Custodian shall at all times during the term of this Agreement, maintain, at its own expense, insurance with respect to the assets held in the Accounts in such amounts and covering such risks as the Custodian maintains for its own account or for the accounts of other similarly situated customers of the Custodian and is otherwise reasonable and customary in light of prevailing industry standards. If requested, Custodian shall provide Client evidence of coverage. The limits of insurance shall not limit the liability of Custodian, its officers, employees, agents, representatives or Subcustodians.

**10.14 Sovereign Immunity.** The Custodian hereby acknowledges that the Client reserves all immunities, defenses, rights or actions arising out of its sovereign and governmental status or under the Eleventh Amendment to the United States Constitution, and that no waiver of any such immunities, defenses, rights or actions shall be implied or otherwise deemed to exist by reason of its entry into this Agreement or any other agreement related thereto, by any express or implied provision thereof or by any acts or omissions to act by the Client or its designees. The Client represents and warrants that the foregoing does not and shall not be interpreted (or be asserted by Client) to, relieve the Client from any of its contractual obligations under this Agreement or any other agreement related thereto, and that the Custodian shall have the right to judicially enforce such obligations at law or in equity.

[Remainder of page intentionally left blank]

**IN WITNESS WHEREOF**, the parties hereto have executed this Agreement as of the latest date set forth below.

**Authorized Signer of:**  
**KENTUCKY RETIREMENT SYSTEMS**

**Authorized Officer of:**  
**THE BANK OF NEW YORK MELLON**

**By:** \_\_\_\_\_  
**Name:** \_\_\_\_\_  
**Title:** \_\_\_\_\_  
**Date:** \_\_\_\_\_

**By:** \_\_\_\_\_  
**Name:** \_\_\_\_\_  
**Title:** \_\_\_\_\_  
**Date:** \_\_\_\_\_

**Address for Notice:**  
Kentucky Retirement Systems  
1260 Louisville Road  
Frankfort, KY 40601  
Attention: J. Richard Robben  
Title: Chief Investment Officer

**Address for Notice:**  
The Bank of New York Mellon  
\_\_\_\_\_  
\_\_\_\_\_  
Attention: \_\_\_\_\_

## EXHIBIT A

### CROSS-TRADING INFORMATION

As part of the Cross-Trading Program covered by the Department of Labor Prohibited Transaction Exemption (“PTE”) 95-56 for Mellon Bank, N.A. and its affiliates (“BNY Mellon”), BNY Mellon is to provide to the Client the following information:

#### I. The Existence of the Cross-Trading Program

BNY Mellon has developed and intends to utilize, wherever practicable, a Cross-Trading Program for Indexed Accounts and Large Accounts as those terms are defined in PTE 95-56.

#### II. The “Triggering Events” Creating Cross-Trade Opportunities

In accordance with PTE 95-56, three “Triggering Events” may create opportunities for Cross-Trading transactions. They are generally the following (see PTE 95-56 for more information):

1. A change in the composition or weighting of the index by the independent organization creating and maintaining the index;
2. A change in the overall level of investment in an Indexed Account as a result of investments and withdrawals on the Indexed Account’s opening date, where the Indexed Account is a bank collective fund, or on any relevant date for non-bank collective funds; provided, however, a change in an Indexed Account resulting from investments or withdrawals of assets of BNY Mellon’s own plans (other than BNY Mellon’s defined contributions plans under which participants may direct among various investment options, including Indexed Accounts) are excluded as a “Triggering Events”; or
3. A recorded declaration by BNY Mellon that an accumulation of cash in an Indexed Account attributable to interest or dividends on, and/or tender offers for portfolio securities equal to not more than .5% of the Indexed Account’s total value has occurred.

#### III. The Pricing Mechanism Utilized for Securities Purchased or Sold

Securities will be valued at the current market value for the securities on the date of the crossing transaction.

Equity Securities - the current market value for the equity security will be the closing price on the day of trading as determined by an independent pricing service; unless the security was added to or deleted from an index after the close of trading,

in which case the price will be the opening price for that security on the next business day after the announcement of the addition or deletion.

Debt Securities - the current market value of the debt security will be the price determined by BNY Mellon as of the close of the day of trading according to the Securities and Exchange Commission's Rule 17a-7(b)(4) under the Investment Company Act of 1940. Debt securities that are not reported securities or traded on an exchange, will be valued based on an average of the highest current independent bids and the lowest current independent offers on the day of cross trading. BNY Mellon will use reasonable inquiry to obtain such prices from at least three independent sources that are brokers or market makers. If there are fewer than three independent sources to price a certain debt security, the closing price quotations will be obtained from all available sources.

IV. The Allocation Method

Direct cross-trade opportunities will be allocated among potential buyers or sellers of debt or equity securities on a pro-rata basis. With respect to equity securities, please note BNY Mellon imposes a trivial dollar amount constraint to reduce excessive custody ticket charges to participating accounts.

V. Other Procedures Implemented by BNY Mellon for its Cross-Trading Practices

BNY Mellon has developed certain internal operational procedures for cross-trading debt and equity securities. These procedures are available upon request.

**EXHIBIT B**  
**AUTHORIZED PERSONS**

[To be Attached]

**EXHIBIT C**

**FEES**

**[Attached]**



# Kentucky Retirement Systems

Fee Schedule  
Eff July 1 2019

Fee Schedule includes the following Products:

- Custody
- Accounting
- Global Risk Solutions

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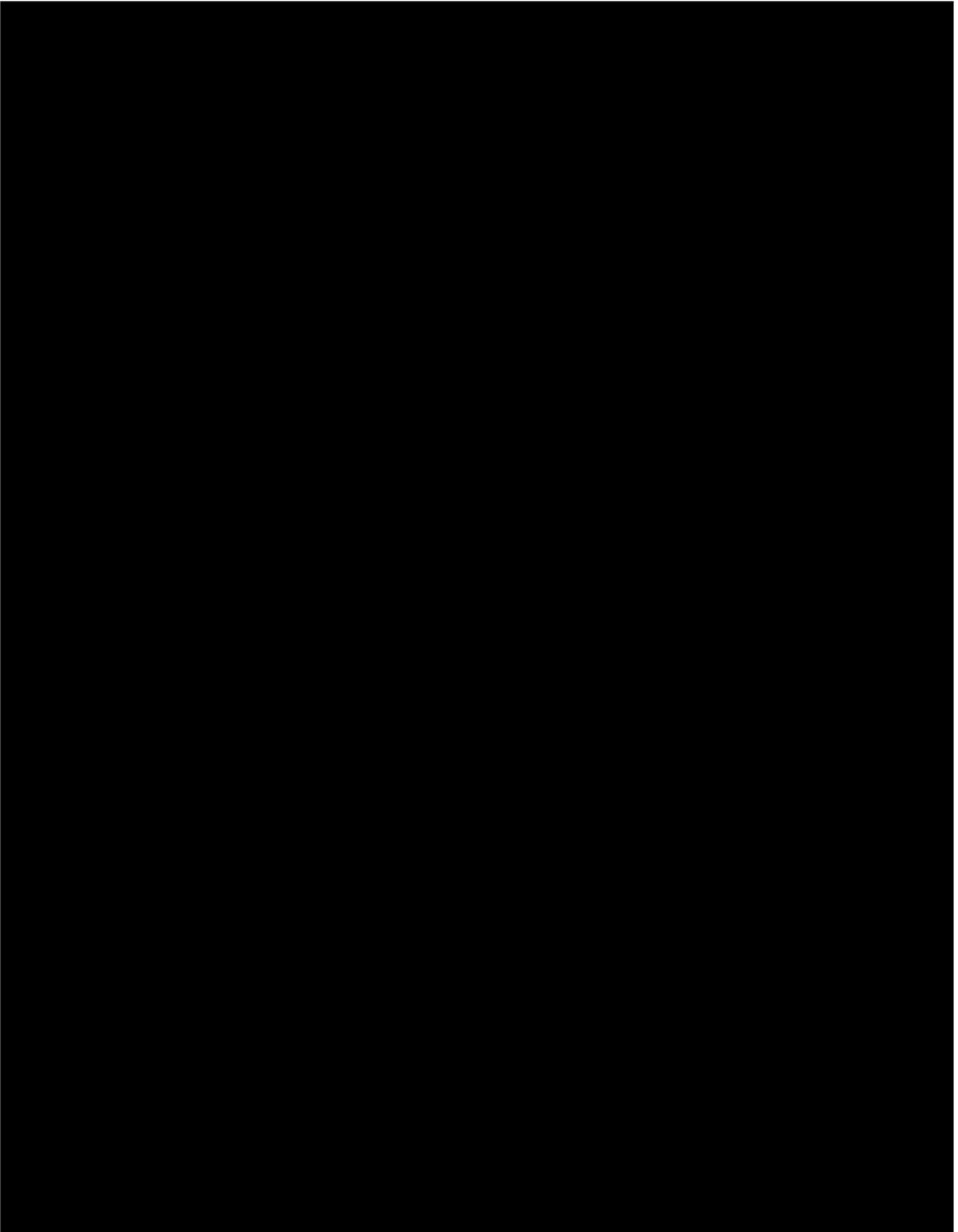
**APPENDIX B - EXPLANATORY NOTES** ..... **14**

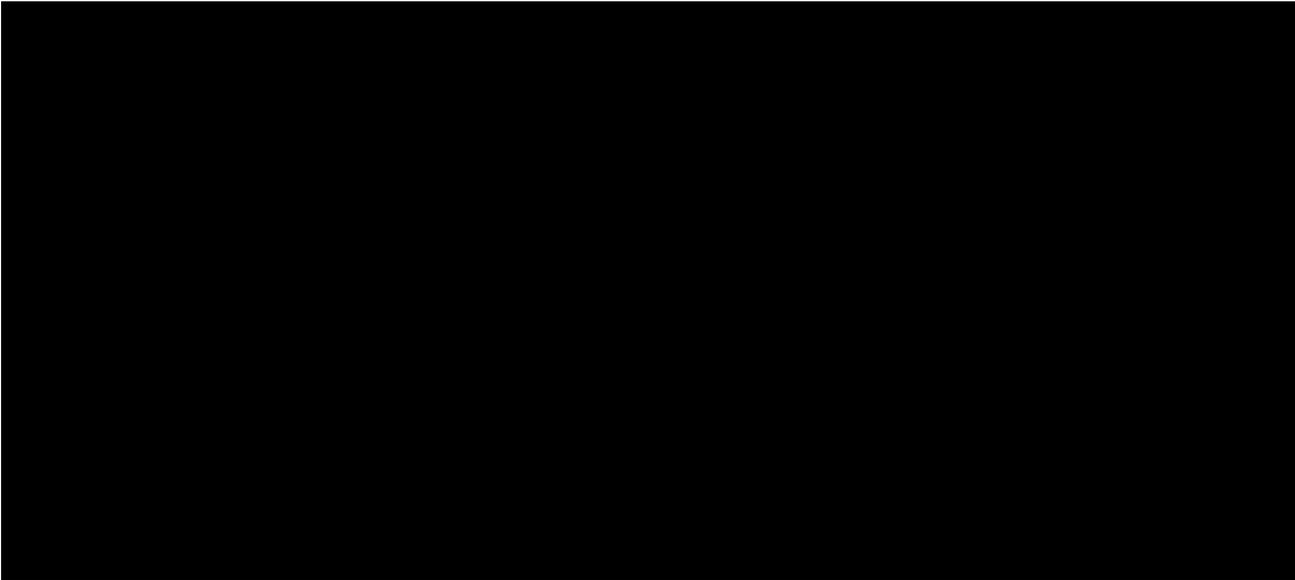
## I) Global Custody

### a) Administrative Fee

US Assets Under Custody/Administration, Annual Fee <sup>1</sup>	
US Assets Under Administration, Annual Fee	

**b) Global Safekeeping / Asset and Security Movement Fees**

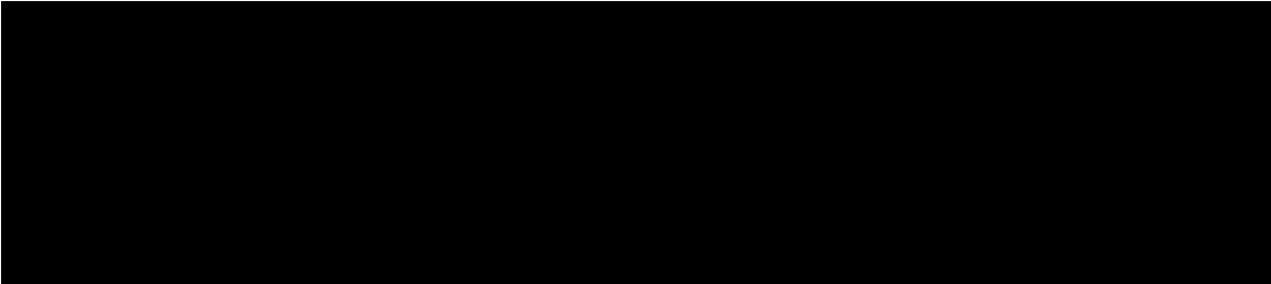




**c) Other Transactions**



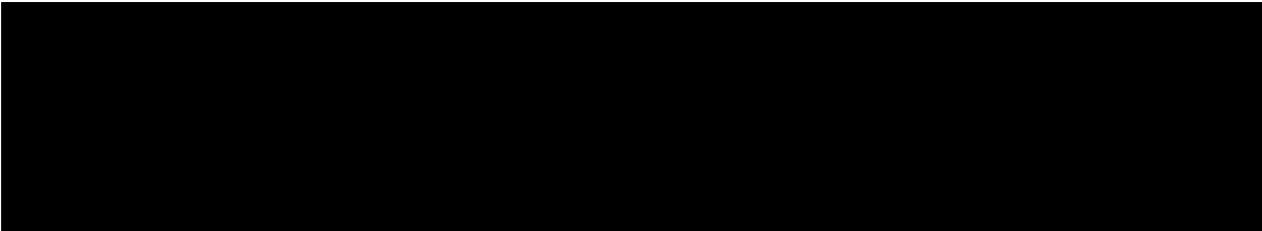
**d) Cash & Foreign Exchange Transactions**



**e) Manual Intervention**



**f) Proxy Voting**



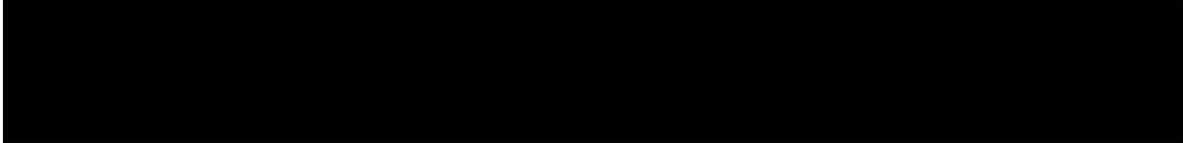
**g) Minimum Fee**



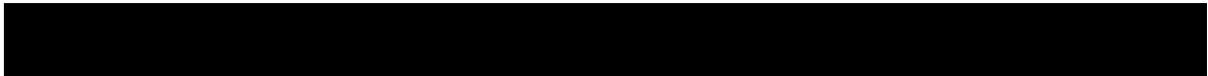
**h) Other Items**



**i) Cash Investment Sweep**



**j) Standard Regulatory Support Fee**

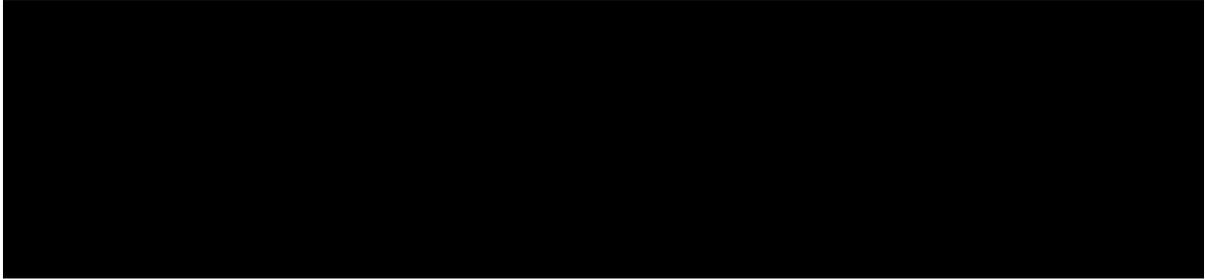


## II) Global Investment Accounting

### a) Administrative Fee



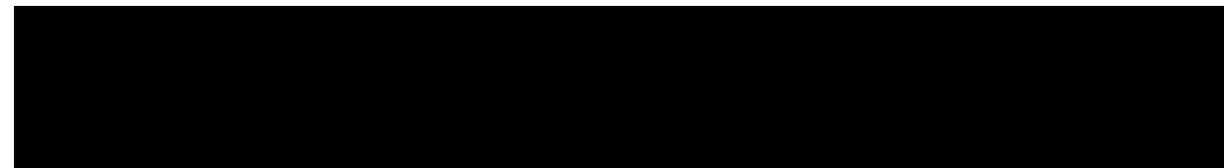
### b) Structural Charges



### c) Plan Accounting



### d) Independent Valuation

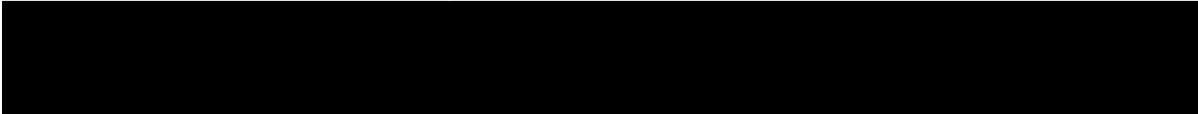


### III) Global Risk Solutions

a) Performance Measurement



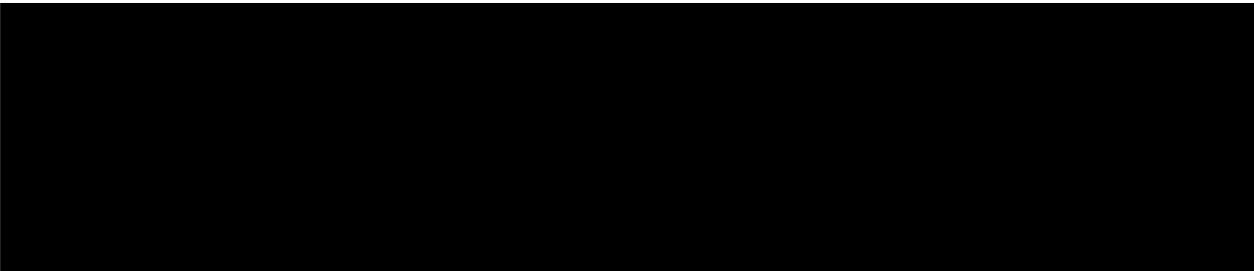
b) Performance Measurement - Monthly



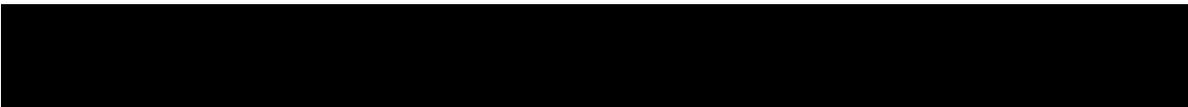
c) Monthly Non-Lagged Performance



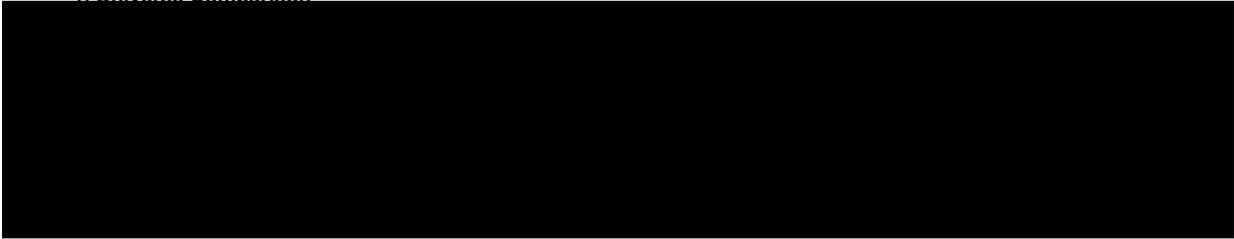
d) Global Analytics



e) Performance Attribution



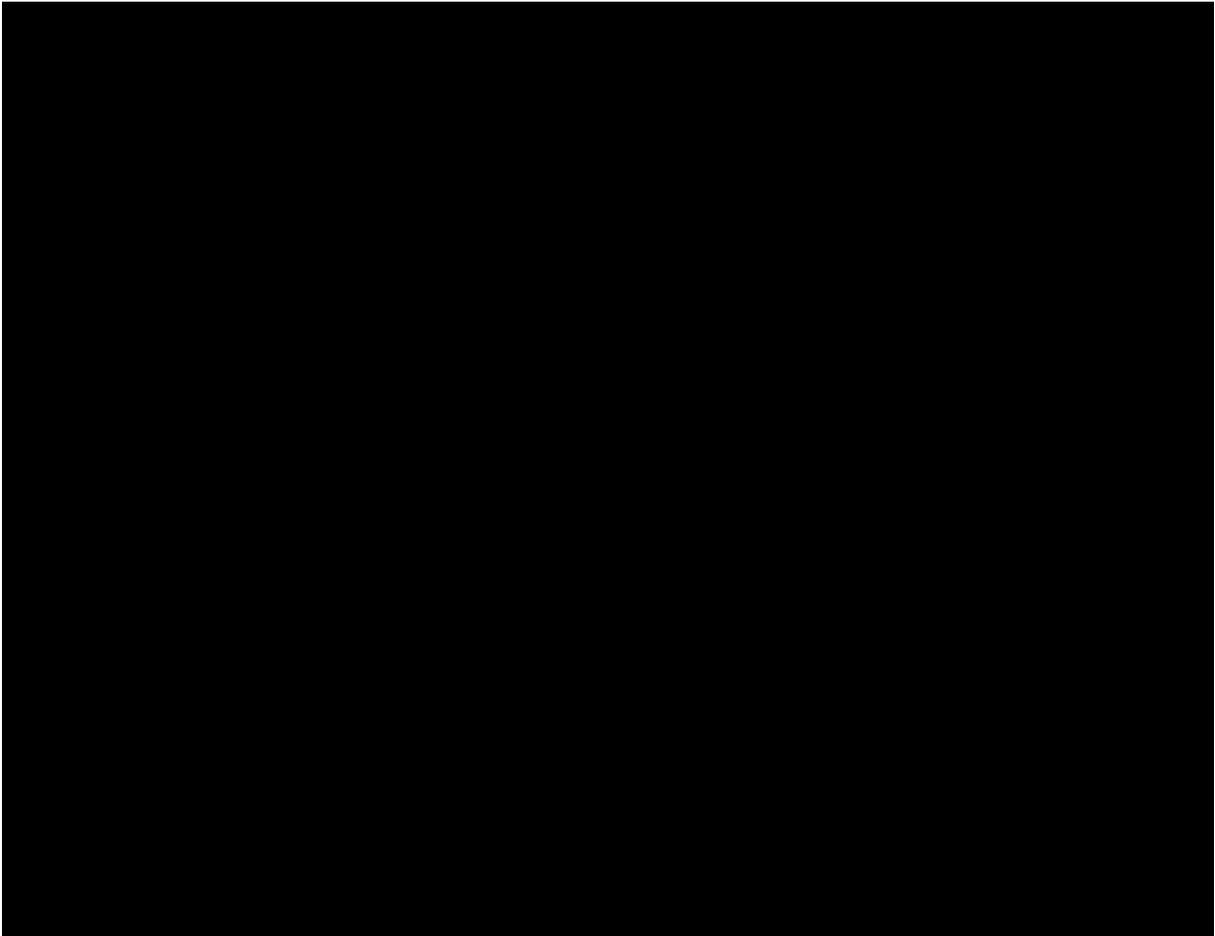
**f) Universe Comparison**



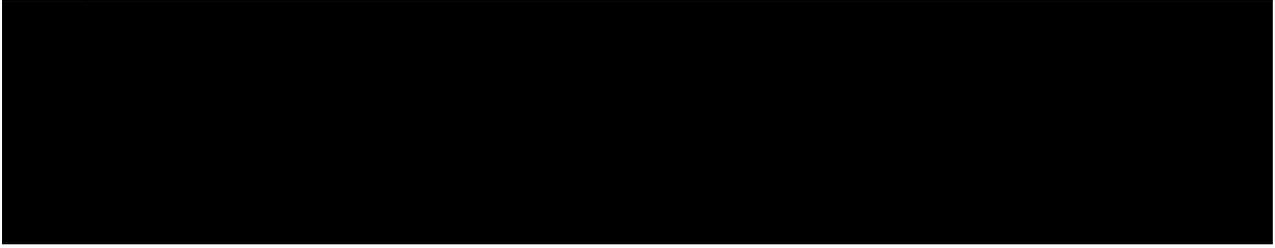
**g) Compliance Monitoring**



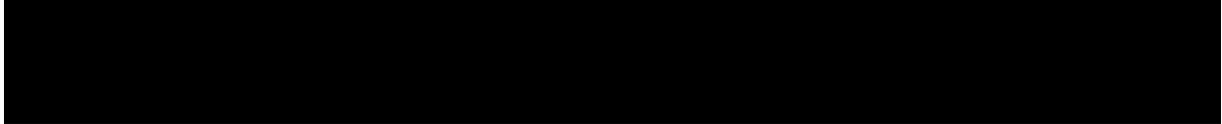
**h) Private Equity Support**



**i) PIAAS**



**j) Vendor Costs**

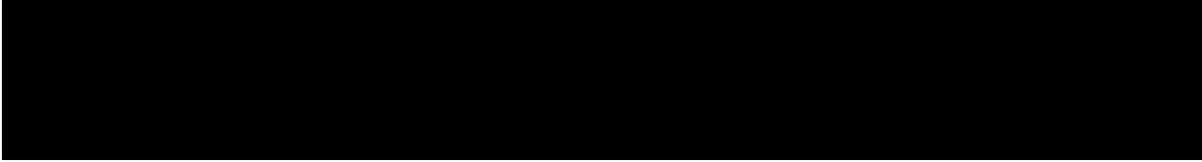


**k) Data Extract - Automated or Custom**



## **IV) API Store**

### **a) Core APIs**



### **b) Specialized Services APIs**



## V) Terms and Conditions

- This fee schedule assumes BNY Mellon Asset Servicing is the sole securities lending agent and collateral manager and may lend your assets in accordance with the applicable fund guidelines.
- We will pass through to the client any out-of-pocket expenses including, but not limited to, courier expense, registration fees, stamp duties, CLS, vendor costs, external legal or consulting costs. Additionally, an administrative fee of 10% with a maximum of \$250 per item will be assessed.
- BNY Mellon's fees are based upon the data provided and the current regulatory environment. In the event that there are any material differences to the regulations, funds, assets transactions and / or services required, BNY Mellon reserves the right to amend our fees if the service requirements or volumes change in a way that materially affects our responsibilities or costs.
- BNY Mellon reserves the right to implement fees for the provision of data and the maintenance of technology leveraged in the provision of data.
- Except as otherwise provided under this fee schedule, this schedule shall remain in full force and effect until the effective date of a subsequent fee schedule executed by the parties hereto.
- Tax services, including, but not limited to Federal 990T and Federal 990, and hard copy statements are available upon request for an additional fee.
- For details on certain direct and indirect compensation that may be earned by BNY Mellon, please refer to our website: [www.bnymellon.com/as-disclosures](http://www.bnymellon.com/as-disclosures). Once on the site, the following password will be required to review the content: ASCOMP00 (note: the last 2 digits in the password are zeros).
- All of the information contained within the schedules is confidential and should not be made available to third parties without prior permission from BNY Mellon.
- A security movement is defined as a receipt or delivery versus payment, a free receive or deliver, maturities, or security movement related to corporate events or a cancellation of any of these movement types, except corporate events. The transaction fees for all markets exclude the review, processing and execution of non-standard subscription forms or other documentation that is required to be completed as part of the processing of the transaction. Fees for such transactions will be quoted on request.
- BNY Mellon will bill on a monthly basis; payments will be directly charged to accounts designated by you, either automatically ("direct debit") or following a charging instruction ("direct charge").
- All amounts due will be payable within 30 days of invoice date. Fees not paid within 60 days of the date of the invoice will be subject to a late charge of 1.5% per month. Any objections, corrections, or adjustments to a bill must be raised within 12 months of the billing date. In addition, BNY Mellon reserves the right to adjust a client bill for any under-billed activities up to 12 months after the billing date. After the 12-month period, all bills will be considered final.
- Unless otherwise indicated, this fee schedule applies to listed equities and debt instruments that are held and transacted in their home country with the local CSD. Additional fees may apply in any other circumstances.

Agreed and accepted for effective date \_\_\_\_\_ by:

### Kentucky Retirement Systems

### The Bank of New York Mellon

By: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Date: \_\_\_\_\_

By: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Date: \_\_\_\_\_

## **Appendix A - Assumptions**

The Accounting administrative fee of 0.10bps per annum relates to the Daily Hard Close. This incremental fee applies to Assets under Custody.

Capital Call Support - First 200 LPs at no charge

The surcharge for manual activity applies to corporate action instructions only.

## Appendix B - Explanatory Notes

### Footnotes

#### **Global Custody**

1. The annual fee covers Global Custody only.
2. Unless otherwise indicated, this fee schedule applies to listed equities and debt instruments that, are held and transacted in their home country with the local CSD and is based on the month-end market value of the assets held under custody. Additional fees may apply in any other circumstances.
3. A security transaction is defined as a receipt or delivery versus payment, a free receive or deliver, maturities, or security movement related to corporate events (including P&I, Payup/Paydown, unless separately priced) or a cancellation of any of these movement types, except corporate events.
4. DTC-eligible securities only.
5. Eurobonds are held in Clearstream at a standard rate, but other types of securities (including but not limited to equities, domestic market debt and mutual funds) will be subject to a surcharge. In addition, certain transactions that are delivered within Clearstream or from a Clearstream account to a third party depository or settlement system, will be subject to a surcharge. Please refer to the Surcharge Fee Schedule provided separately for further information. Please note the Surcharge Fee Schedules are subject to change and can be requested at any time.
6. Asset fees for International Debt Instruments (as defined by Euroclear Bank) held at Euroclear will be assessed at our standard Euroclear rate indicated above. All other types of securities (including but not limited to International Equities, International Depository Receipts, International Warrants and Domestic Market Securities) held at Euroclear will be subject to a surcharge. The amount of the surcharge varies taking into account features of the particular security held. Purchases or sales Transactions involving the delivery of securities as referenced above within Euroclear or from a Euroclear account to a third party depository or settlement system will also be subject to a surcharge that varies based upon the details of the transaction. Please refer to the Surcharge Fee Schedule provided separately for further information. Please note the Surcharge Fee Schedules are subject to change and can be requested at any time.
7. For DTC non-transferable assets: securities that have been non-transferable for more than 6 years. BNY Mellon policy is to remove these securities from BNY Mellon client's account. Clients who decide to keep in their account a security identified as non-transferable for more than 6 years will be charged a fee of \$5.00 per security per month.
8. All fees outlined in this proposal are based on all transactions being STP. In case of manual intervention for a transaction or corporate action a surcharge will apply in addition to the transaction fee for each market, currency movement or external foreign exchange.
9. BNY Mellon will pass through to the client any other Proxy Service Charges plus 10%.
10. BNY Mellon will file class action Proofs of Claim on your behalf for the duration of our contractual relationship. An amount equal to 3% of the proceeds will be charged against each participating account at the time the proceeds are credited.
11. The Standard Regulatory Support Fee partly covers BNY Mellon ongoing maintenance and investments in products, technology and servicing capabilities to keep up with the regulatory changes and to develop capabilities to provide additional materials and reporting support to clients.

#### **Global Risk Solutions**

1. Requires a subscription to Monthly Performance.
2. Requires a subscription to Performance, Monthly, Security Level and Daily.
3. Requires a subscription to Monthly Analytics.
4. Fee is per exploded line item.
5. Monitoring requires subscription to monthly and/or daily analytics.

### Additional Notes

#### **API Store**

1. API stands for Application Program Interface.



Prepared for



# WILSHIRE ASSOCIATES

Wilshire Consulting



## Investment Policy Statement Discussion

August 27, 2019



## Investment Policy Statement Discussion

# Executive Summary

- The Kentucky Retirement Systems' Investment Policy Statement provides an adequate framework for the management of the plan assets
- Improvements can be made to better align the document with best practices and the changes in approach that have taken place in the two years since Wilshire was hired as general consultant
- Goals:
  - Make the document easier to follow and understand for all stakeholders
  - Bring requirements in line with best practices and ensure they are can be practically implemented
  - Capture changes that have been made since the last update of the document



## Investment Policy Statement Discussion

# Reorganization

- The current IPS contains most of the elements typically contained in a well designed policy, but could benefit from some reorganization to make the flow of the document easier to follow
- Proposed layout:
  - Introduction – move the philosophy and objectives to the beginning and add a statement of purpose
  - Responsibilities – keep the outlined responsibilities for the board, investment committee, staff, and service providers
  - Asset Allocation – keep the existing language for the most part, but bring the asset allocation targets from Appendix A and B into the document
  - Monitoring – combining the measurement and performance review sections
  - Additional Items – derivatives policy, references and links to incorporated policies and/or state statutes, and signatures



## Investment Policy Statement Discussion

# 1. Introduction

- Purpose (new):
  - To define a framework for the investment of the assets of KRS
- Philosophy:
  - Add language about the importance of the asset allocation decisions
  - Incorporate the Active Management Plan from the February 2019 meeting
    - » Outline which asset classes are to be accessed via passive investment and which should be the focus for generating alpha via active management
- Objectives:
  - Add that the primary objective of KRS is to be able to pay benefits



## Investment Policy Statement Discussion

# 2. Responsibilities

- Staff is tasked with “Monitoring and assessing service providers, *including not less than annual onsite visits*, to assure that they meet expectations and conform to policies and guidelines”
  - The requirement of annual onsite visits is onerous, and exceeds the requirements for monitoring existing managers that Wilshire recommends or typically sees with its clients
  - Staff discretion can be used to determine when onsite visits are necessary, with assistance from the consultant which is also conducting ongoing manager monitoring and due diligence
- Investment managers “shall generally have been in the business of investment management for large United States institutional investors for at least three to five years”
  - Using the word “generally” makes the requirement vague, as does “at least three to five years”
  - The requirement should be that the firm is of institutional quality, as determined by the staff in conjunction with their consultant(s)
  - Searches can include further requirements as appropriate in the screening/RFP process



## Investment Policy Statement Discussion

### 3. Asset Allocation

- The specific asset allocation targets and ranges, previously contained in Appendix A and B, should be move into the body of the IPS
  - Language regarding reallocation at +/- 15% of target can be removed, as the asset classes all have minimum and maximum ranges already approved
- This section should be organized by the bucketing framework that was introduced when the previous Asset-Liability study was conducted:
  - Growth – US Equity, Non US Equity, Private Equity, High Yield/Specialty Credit
  - Liquidity – Core Fixed Income, Cash
  - Diversifying – Real Estate, Opportunistic/Absolute Return, Real Return
- Some asset classes will have their own policy and/or structure documents that will be saved separately but referenced in the IPS
- Rebalancing procedures should be outlined in greater detail, but in a framework that still leaves discretion to the CIO and staff to maximize efficiency in terms of time and cost
  - Best practice is to use regular cash flows to rebalance toward targets, and to avoid incurring additional trading costs to correct minor deviations from policy targets



## Investment Policy Statement Discussion

### 3. Asset Allocation

- The policy regarding increasing manager allocations states that the CIO will have limited discretion, “defined as doubling the size of any investment committee approved investment amount of an account that is less than or equal to 1% of total assets or adding an additional 1% of capital to any investment committee approved amount that is greater than 1% of total assets”
  - This is overly restrictive compared to other plans Wilshire works with, and has limited Staff’s ability to reallocate assets toward the asset class structure and overall asset allocation targets
- Some underlying restrictions for asset classes, particularly within real estate and private equity, are either uncontrollable, unnecessary, or both
  - Guidelines exist to ensure diversification across managers, GPs, vintage year, and more
  - Restrictions on property type, sector, and the like are typically out of the control of the investor once a commitment is made



## Investment Policy Statement Discussion

### 4. Monitoring

- Benchmarking details for the total plan, previously contained in Appendix A and B, should be moved into this section
- Procedures for changing benchmarks should be clearly defined in the IPS, but are not in the current document



## Investment Policy Statement Discussion

# 5. Additional Items - Derivatives

- The detailed definitions of derivatives are unnecessary, or at least could be moved into a reference document
- A succinct definition of leverage should be included, and the policy regarding leverage should be clearly outlined
  - Leverage is not permitted to increase the notional exposure of the funds. Derivatives are permissible when the full notional value is collateralized by cash equivalent securities (as defined in the asset allocation section earlier in the IPS).
- Ensuring that the derivatives policy, and the IPS as a whole, is consistent with state statutes and regulations is of the utmost importance
  - The relevant legislation should be referenced and linked wherever possible