Kentucky Retirement Systems
INVESTMENTS

To: KRS Investment Committee

From: Richard Robben, Interim Executive Director of Investments

Date: February 6th, 2018

Subject: Update on implementation of new asset allocation

In July, 2017, the Investment Committee and the Board of Trustees voted to implement a new Asset Allocation for all systems that shifted a significant amount of dollars from Equities into Credit. The changes are summarized below:

	KERS			SPRS			All Others		
	Old	New	Change	Old	New	Change	Old	New	Change
Equity	**52.00%**	**45.00%**	**-7.00%**	**56.00%**	**45.00%**	**-11.00%**	**63.00%**	**45.00%**	**-18.00%**
US Equity	22.00%	17.50%		23.00%	17.50%		26.50%	17.50%	
Non-US Equity	20.00%	17.50%		23.00%	17.50%		26.50%	17.50%	
Private Equity	10.00%	10.00%		10.00%	10.00%		10.00%	10.00%	
Credit	**25.00%**	**30.00%**	**5.00%**	**21.00%**	**30.00%**	**9.00%**	**14.00%**	**30.00%**	**16.00%**
Global Fixed Income	10.00%	10.00%		9.00%	10.00%		6.00%	4.00%	
Credit Fixed Income	12.00%	17.00%		9.00%	17.00%		6.00%	24.00%	
Cash	3.00%	3.00%		3.00%	3.00%		2.00%	2.00%	
Diversifying Strategies	**23.00%**	**25.00%**	**2.00%**	**23.00%**	**25.00%**	**2.00%**	**23.00%**	**25.00%**	**2.00%**
Real Estate	5.00%	5.00%		5.00%	5.00%		5.00%	5.00%	
Absolute Return	10.00%	10.00%		10.00%	10.00%		10.00%	10.00%	
Real Return	8.00%	10.00%		8.00%	10.00%		8.00%	10.00%	
	100.00%	100.00%		100.00%	100.00%		100.00%	100.00%	

Due to the magnitude of the changes required, the Investment Committee decided to implement these changes over time, removing roughly 4% of the equity exposure per quarter. Staff executed the first 4% reduction at the end of September, 2017. The second installment had been scheduled for the early January, but was postponed in order for Wilshire to complete an investment structure study of our equity holdings. The first section of the report, which looked at our domestic equity portfolio, has been completed. The second portion, dealing with our International Equity portfolio, should be complete in early February. Once staff has reviewed this last study, we plan to execute a 6% reduction in equity exposure. When complete, the KERS Pension Plan and the SPRS Pension Plan will be at 48% total equity exposure, and all other plans will be at 53%.

When the next 6% reduction is executed, Staff is recommending that the proceeds be split equally between the BNY Intermediate Credit CTF, and an investment grade floating rate ETF (FLRN, FLOT) in order to increase our exposure to floating-rate credit. Currently 23% of our

Fixed Income assets are floating rate. Staff would like to see that increase to roughly 33% over the coming months in anticipation of interest rates rising.

MOTION: Accept the recommendation of Staff to proceed with the next 6% reduction in Equities as stated, and that the proceeds be split evenly between the BNY Intermediate Credit CTF and the SPDR Bloomberg Barclays Investment Grade Floating Rate Bond ETF. (Or similar)

STATE STREET GLOBAL ADVISORS. SPDR

As of 12/31/2017

SPDR® Bloomberg Barclays Investment Grade Floating Rate ETF

FLRN

Fund Inception Date
11/30/2011

CUSIP
78468R200

Key Features

- The SPDR® Bloomberg Barclays Investment Grade Floating Rate ETF seeks to provide investment results that, before fees and expenses, correspond generally to the price and yield performance of the Bloomberg Barclays U.S. Dollar Floating Rate Note < 5 Years Index
- Seeks to provide exposure to debt instruments that pay a variable coupon rate, a majority of which are based on the 3-month LIBOR, with a fixed spread

About This Benchmark

The Bloomberg Barclays U.S. Dollar Floating Rate Note < 5 Years Index consists of debt instruments that pay a variable coupon rate, a majority of which are based on the 3-month LIBOR, with a fixed spread. The Index may include U.S. registered, dollar denominated bonds of non-U.S. corporations, governments and supranational entities. Excluded from the Index are fixed rate bullet bonds, fixed-rate puttable and fixed-rate callable bonds, fixed rate and fixed to floating capital securities, bonds with equity-linked features, inflation linked bonds and securitized bonds.

Performance	Total Return		Annualized			
	QTD	YTD	1 Year	3 Year	5 Year	Since Fund Inception
NAV (%)	0.45	1.98	1.98	1.26	1.05	1.40
MARKET VALUE (%)	0.43	1.77	1.77	1.32	0.95	1.41
Index (%)	0.50	2.16	2.16	1.41	1.20	1.61

	(%)		(%)
Gross Expense Ratio	0.15	**30 Day SEC Yield**	1.55

Performance quoted represents past performance, which is no guarantee of future results. Investment return and principal value will fluctuate, so you may have a gain or loss when shares are sold. Any QTD, YTD and Since Inception Returns shown are cumulative. Current performance may be higher or lower than that quoted. Visit spdrs.com for most recent month-end performance. Performance of an index is not illustrative of any particular investment. It is not possible to invest directly in an index.

Definitions: NAV - The market value of a mutual fund's or ETFs total assets, minus liabilities, divided by the number of shares outstanding. **Market Value** - Determined by the midpoint between the bid/offer prices as of the closing time of the New York Stock Exchange (typically 4:00PM EST) on business days. **Gross Expense Ratio** - The fund's total annual operating expense ratio. It is gross of any fee waivers or expense reimbursements. It can be found in the fund's most recent prospectus. **30 Day SEC Yield** - (Also known as Standardized Yield) An annualized yield that is calculated by dividing the net investment income earned by the fund over the most recent 30-day period by the current maximum offering price. **Index Average Yield to Worst** - The lowest potential yield that can be received on a bond without the issuer actually defaulting. The YTW is calculated by making worst-case scenario assumptions on the issue by calculating the return that would be received if the issuer uses provisions, including prepayments. When aggregating YTW for a portfolio level statistic, the weighted average of the YTW and market value for each security is used. **Option Adjusted Duration** - An option-adjusted measure of a bond's (or portfolio's) sensitivity to changes in interest rates calculated as the average percentage change in a bond's value (price plus accrued interest) under shifts of the Treasury curve +/- 100 bps. Incorporates the effect of embedded options for corporate bonds and changes in prepayments for mortgage-backed securities. **Option Adjusted Spread** - A measurement of a fixed-income security rate and the risk-free rate of return, which is then adjusted to take into account an embedded option.

Characteristics	
Index Average Yield to Worst	1.78%
Number of Holdings	587
Option Adjusted Duration	0.13
Option-Adjusted Spread	46.1

Top Sectors	Weight (%)
Corporate - Finance	54.19
Corporate - Industrial	29.09
Non Corporates - Supranationals	7.87
Non Corporates - Foreign Agency	6.57
Non Corporates - Foreign Local Govt	1.01
Corporate - Utility	0.69
Cash	0.58

Quality Breakdown	Weight (%)
Aaa	11.81
Aa	23.67
A	47.92
Baa	16.61

Maturity Ladder	Weight (%)
0 - 1 Year	26.53
1 - 2 Years	24.08
2 - 3 Years	24.85
3 - 5 Years	24.10
5 - 7 Years	0.44

Totals may not equal 100 due to rounding.

Quality Breakdown - Bloomberg Barclays uses the "middle rating" of Moody's, S&P, and Fitch to determine a security's index classification. If only two of the agencies rate a security, then the most conservative (lowest) rating will be used. If only one rating agency rates a security, that one rating will be used. Where there are no security level ratings, an issuer rating may be used to determine index classification. Bloomberg Barclays Index breakdowns are grouped into larger categories. For example, AAA+ and AAA are listed as Aaa; AA1, AA2, and AA3 are listed as Aa, etc.

Important Risk Information:

Securities with **floating or variable interest rates** may decline in value if their coupon rates do not keep pace with comparable market interest rates. Narrowly focused investments typically exhibit higher volatility and are subject to greater geographic or asset class risk. The Fund is subject to credit risk, which refers to the possibility that the debt issuers will not be able to make principal and interest payments.

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

Non-diversified funds that focus on a relatively small number of securities tend to be more volatile than diversified funds and the market as a whole.

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

While the shares of ETFs are tradable on secondary markets, they may not readily trade in all market conditions and may trade at significant discounts in periods of **market stress**.

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

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Not FDIC Insured • No Bank Guarantee • May Lose Value

Date of First Use: January 2018

Expiration Date: 04/30/2018

ETF-FLRN 20180111/12:28

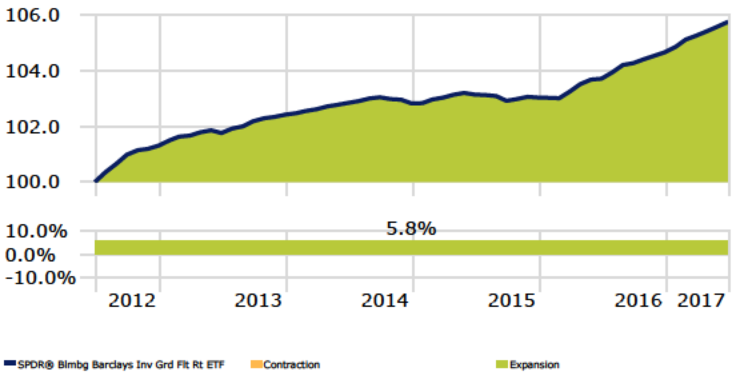
SPDR® Blmbg Barclays Inv Grd Flt Rt ETF

FLRN

Investment Growth

Time Period: 7/1/2012 to 6/30/2017

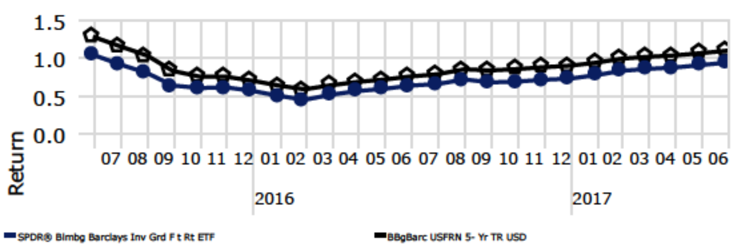
Define drawdown as decline by 10% or more



Rolling Returns

Time Period: 7/1/2012 to 6/30/2017

Rolling Window: 3 Years 1 Month shift   Calculat on Benchmark: BBgBarc USFRN 5- Yr TR USD



Risk

Time Period: 7/1/2012 to 6/30/2017

Calculation Benchmark: BBgBarc USFRN 5- Yr TR USD

	Inv	Bmk1
Return	1.13	1.32
Std Dev	0.36	0.38
Downside Deviation	0.09	0.00
Alpha	-0.12	0.00
Beta	0.93	1.00
R2	95.13	100.00
Sharpe Ratio (arith)	2.61	3.02
Tracking Error	0.08	0.00

Morningstar Rating

Rating Date	6/30/2017
Morningstar Rating Overall	★★★★
Morningstar Rating 3 Yr	★★★★
Morningstar Rating 5 Yr	★★★★
Morningstar Rating 10 Yr	—

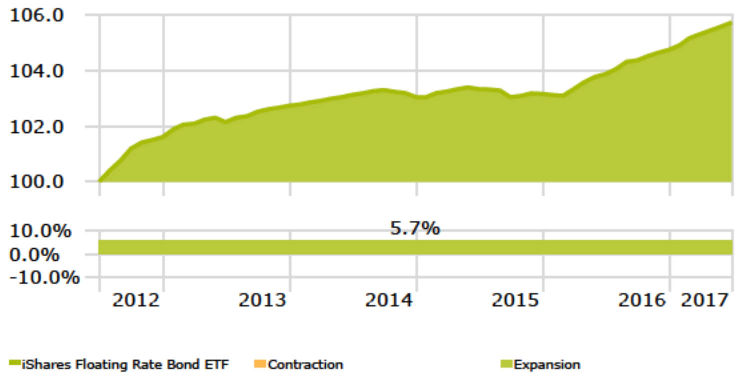
iShares Floating Rate Bond ETF

FLOT

Investment Growth

Time Period: 7/1/2012 to 6/30/2017

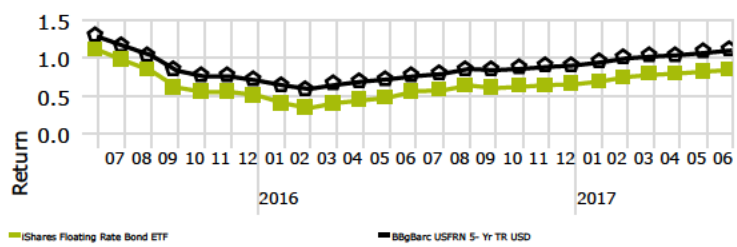
Define drawdown as decline by 10% or more



Rolling Returns

Time Period: 7/1/2012 to 6/30/2017

Rolling Window: 3 Years 1 Month shift   Calculat on Benchmark: BBgBarc USFRN 5- Yr TR USD



Risk

Time Period: 7/1/2012 to 6/30/2017

Calculation Benchmark: BBgBarc USFRN 5- Yr TR USD

	Inv	Bmk1
Return	1.12	1.32
Std Dev	0.42	0.38
Downside Deviation	0.10	0.00
Alpha	-0.31	0.00
Beta	1.10	1.00
R2	95.60	100.00
Sharpe Ratio (arith)	2.24	3.02
Tracking Error	0.09	0.00

Morningstar Rating

Rating Date	6/30/2017
Morningstar Rating Overall	★★★★
Morningstar Rating 3 Yr	★★★
Morningstar Rating 5 Yr	★★★★
Morningstar Rating 10 Yr	—

Source: Morningstar Direct

SPDR® Blmbg Barclays Inv Grd Flt Rt ETF

FLRN

Asset Allocation

Portfolio Date: 7/17/2017

	%
Stock	0.0
Bond	95.5
Cash	4.1
Other	0.3
Total	**100.0**

Fixed-Inc Sectors

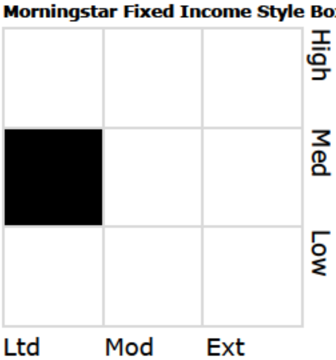
Portfolio Date: 7/17/2017

	Inv	Bmk
Government %	0.00	—
Government Related %	14.20	—
Municipal Taxable %	0.44	—
Municipal Tax-Exempt %	0.00	—
Bank Loan %	0.00	—
Convertible %	0.00	—
Corporate Bond %	81.13	—
Preferred Stock %	0.00	—
Agency Mortgage-Backed %	0.00	—
Non-Agency Residential Mortgage-Backed %	0.00	—
Commercial Mortgage-Backed %	0.00	—
Covered Bond %	0.00	—
Asset-Backed %	0.07	—
Cash & Equivalents %	4.17	—
Swap %	0.00	—
Forward/Future %	0.00	—
Option/Warrant %	0.00	—

Fixed-Inc Style Box

Portfolio Date: 7/17/2017

Morningstar Fixed Income Style Box™



Fixed-Income Stats

Average Eff Duration	0.1
Average Eff Maturity	2.1
Average Coupon	1.6
Average Price	100.6
Average Credit Quality	A

iShares Floating Rate Bond ETF

FLOT

Asset Allocation

Portfolio Date: 7/14/2017

	%
Stock	0.0
Bond	95.1
Cash	4.9
Other	0.0
Total	**100.0**

Fixed-Inc Sectors

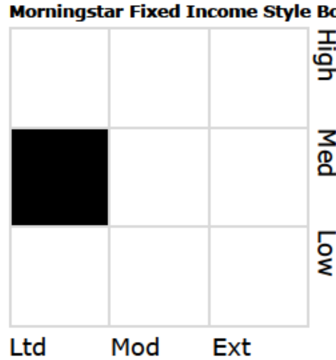
Portfolio Date: 7/14/2017

	Inv	Bmk
Government %	0.00	—
Government Related %	15.24	—
Municipal Taxable %	0.60	—
Municipal Tax-Exempt %	0.00	—
Bank Loan %	0.00	—
Convertible %	0.00	—
Corporate Bond %	79.39	—
Preferred Stock %	0.00	—
Agency Mortgage-Backed %	0.00	—
Non-Agency Residential Mortgage-Backed %	0.00	—
Commercial Mortgage-Backed %	0.00	—
Covered Bond %	0.00	—
Asset-Backed %	0.21	—
Cash & Equivalents %	4.56	—
Swap %	0.00	—
Forward/Future %	0.00	—
Option/Warrant %	0.00	—

Fixed-Inc Style Box

Portfolio Date: 7/14/2017

Morningstar Fixed Income Style Box™



Fixed-Income Stats

Average Eff Duration	0.1
Average Eff Maturity	2.1
Average Coupon	1.6
Average Price	100.9
Average Credit Quality	A

Source: Morningstar Direct

KENTUCKY RETIREMENT SYSTEMS
INVESTMENTS

To: KRS Investment Committee

From: Richard Robben, Interim Executive Director of Investments

Date: February 6th, 2018

Subject: Requested changes or exemptions to IPS guidelines

Staff is requesting waivers from current Investment Policy Statement guidelines for the reasons presented:

Item	IPS Location	Current IPS Requirement Language	Request	Reason	Staff Note
1	Section 3: C	Monitoring and assessing service providers, including not less than annual onsite visits, to assure that they meet expectations and conform to policies and guidelines.	**Waiver**	Due to a shortage of Investment Staff, some managers have not had an on-site vist by staff within the last 12 months.	Staff is requesting a formal waiver from this requirement. The waiver will be reviewed and renewed at each subsequent Investment Committee meeting
2	Section VIII: Paragraph 3	Staff shall reallocate the assets when the actual asset class allocation deviates from the policy plus any tactical shift by a minimum of 1%, and a maximum of 15% of the allocation target (if target allocation is 20% then action required when +/- 3%).	**Waiver**	Due to current valuations within the real estate sector, staff has been unable to find new investments in this area. 2. Because of the ongoing restructuring of the Absolute Return portfolio, and the changing of Investment Consultants, staff has not been able to make any new investments in this area.	Staff is requesting a formal waiver from this requirement for the Real Estate, Absolute Return, and Fixed Income asset classes. The waiver will be reviewed and renewed at each subsequent Investment Committee meeting
3	Section VIII: Section X Pg. 27	On an annual basis, a comprehensive review of each asset class and underlying portfolios shall be conducted by the staff and presented to the Investment Committee. The review shall consist of an organizational, performance and compliance assessment.	**Waiver**	Annual Asset Class Reviews were last presented to the Investment Committee in September 2015 at the last Board Retreat. Due to the changes in board membership during 2016 and the changing of Investment Consultants in 2017, annual asset class reviews were not produced.	Staff is requesting a formal waiver from this requirement until the May 1st Investment Committee meeting.

Staff is requesting the removal of the following Investment Policy Statement guidelines, as they cannot be enforced:

WILSHIRE ASSOCIATES

Wilshire Private Markets

Kentucky Retirement Systems – Existing Private Equity Portfolio Analysis and Future Implementation

February 6, 2018

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Wilshire Private Markets

AGENDA

EXISTING PORTFOLIO – PENSION

PACING AND PORTFOLIO CONSTRUCTION – PENSION

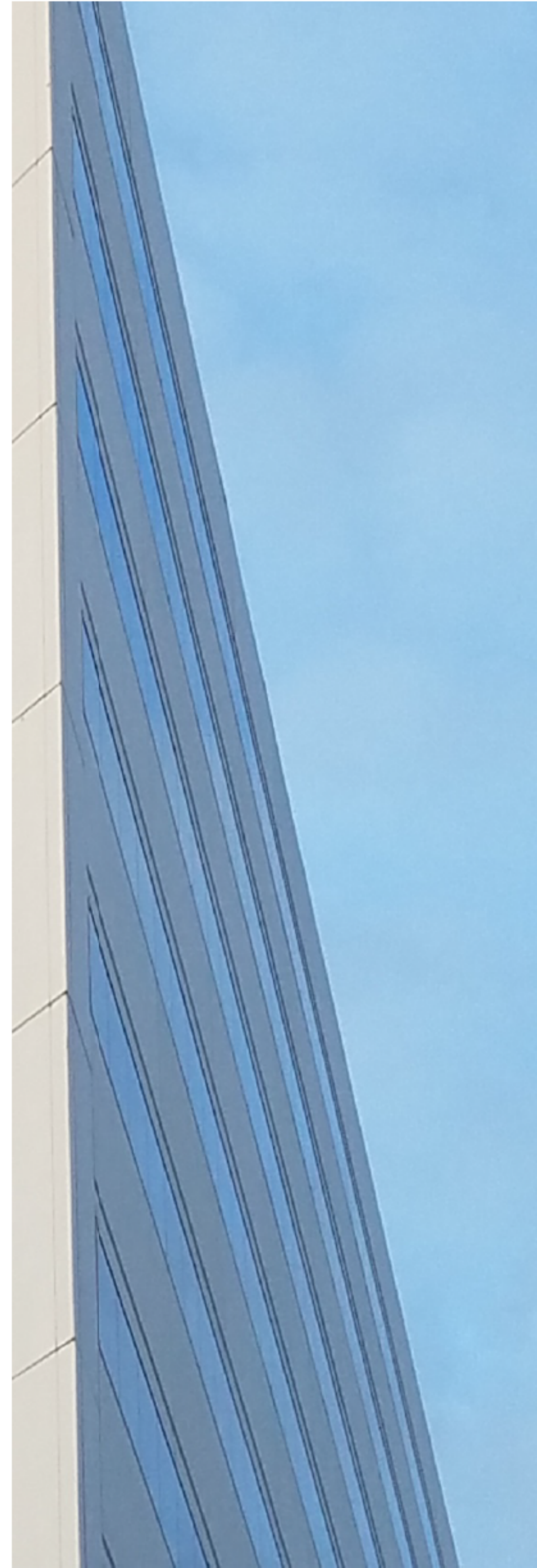
EXISTING PORTFOLIO – INSURANCE

PACING AND PORTFOLIO CONSTRUCTION – INSURANCE

PACING AND PORTFOLIO CONSTRUCTION – PENSION & INSURANCE

FUNDS FOR CONSIDERATION

APPENDIX



EXISTING PORTFOLIO PENSION

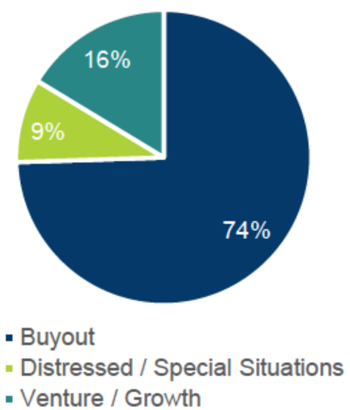
Wilshire Private Markets

EXISTING PRIVATE EQUITY PORTFOLIO COMPOSITION - PENSION

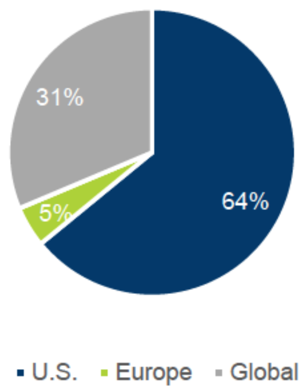
Investment Type	Market Value ($M)	Market Value & Unfunded Commitments($M)*	% Total
Total	***1,209***	***1,645***	***100%***
Buyout	857	1,226	74%
Distressed / Special Situations	104	151	9%
Venture / Growth	248	269	16%
Number of GPs	***37***		
Number of Funds	***66***		
Average Deal Size	***$37.6***		

Commitment and Fund Pacing

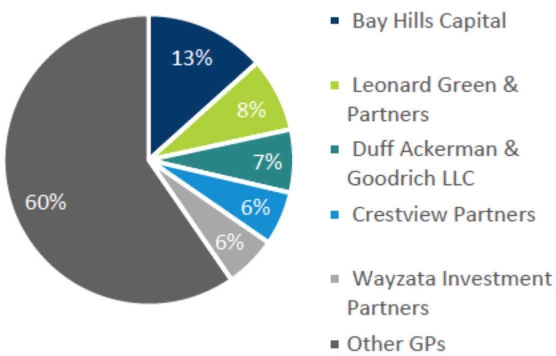
Market Value & Unfunded Commitments(%)



Existing Portfolio Geography (%)



Commitments to GP - Top 5 (%)**



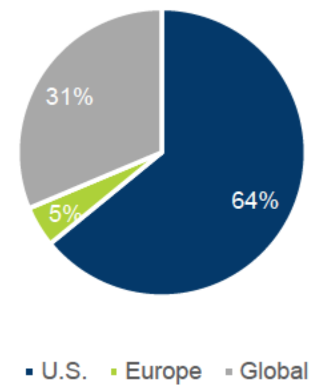
*Market Value & Unfunded Commitments data as of Q3 2017.
** Commitments to GP chart reflects commitment percentages from 2006-present.

CURRENT PRIVATE EQUITY GEOGRAPHIC ALLOCATION - PENSION

Existing Portfolio:

- The Pension Plan has limited non-US exposure, nearly entirely through global mandates - which are heavily US focused
- Limited exposure to Europe and no exposure to Asia Pacific or Emerging Markets through dedicated private equity managers

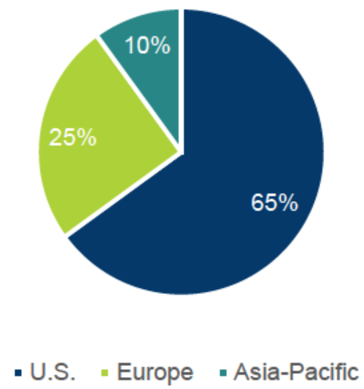
Existing Portfolio Geography (%)



Considerations for Future Allocations:

- Consider additional dedicated European strategies
- Consider allocating to dedicated Asia-Pacific strategies
- Gradually increase exposure to non-US based managers

Target Commitment by Geography



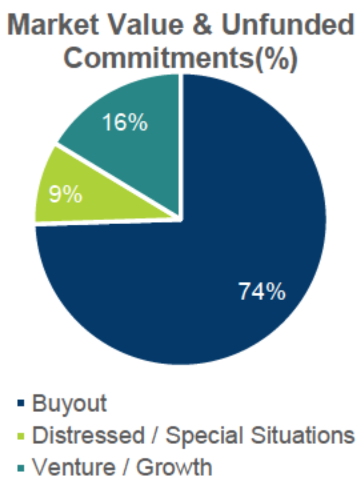
CURRENT PRIVATE EQUITY SECTOR ALLOCATION - PENSION

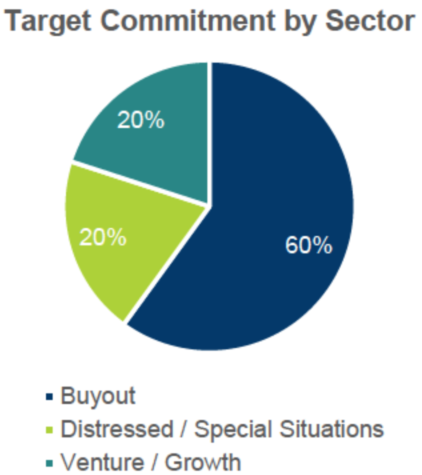
Existing Portfolio:

- The current portfolio is well diversified across private equity types based on current NAVs and commitments
- No venture or special situations dedicated commitments since 2015

Considerations for Future Allocations:

- Consider increasing commitments to special situations strategies, focusing on increasing exposure to non-US based strategies
- Consider annual commitments to each strategy type to ensure appropriate vintage year diversification





Wilshire Private Markets

CURRENT PRIVATE EQUITY GP CONCENTRATION - PENSION

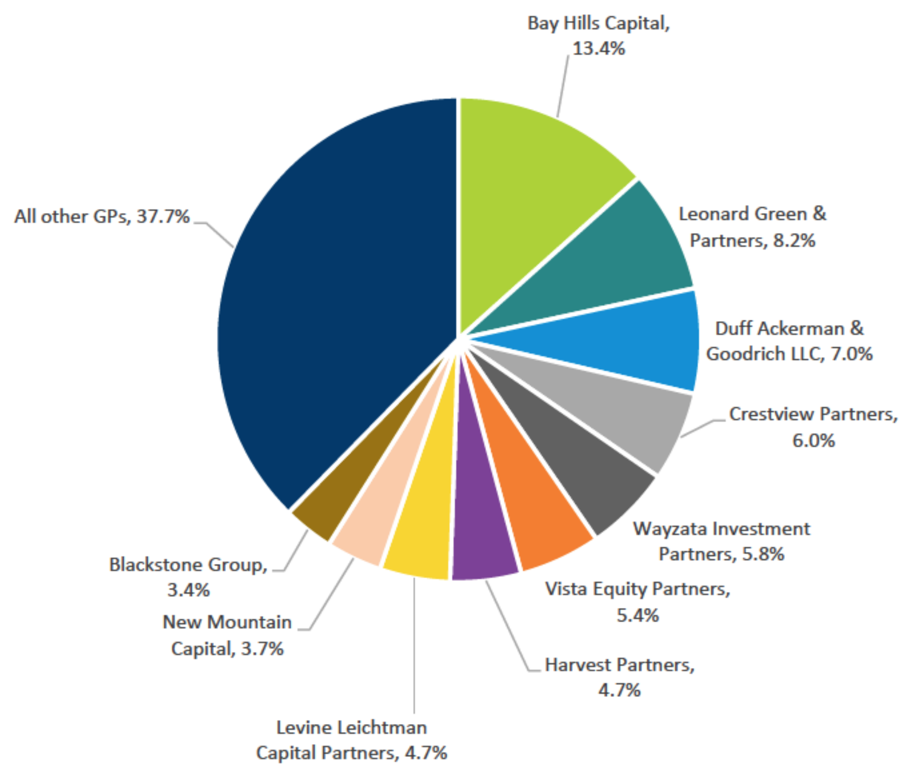
Existing Portfolio:

- The Pension is diversified by general partner
- The largest allocation to a single GP is a fund-of-funds strategy

Considerations for Future Allocations:

- Continue to pursue a diversified portfolio of commitments by general partner

Commitment to GP - Top 10 (%)



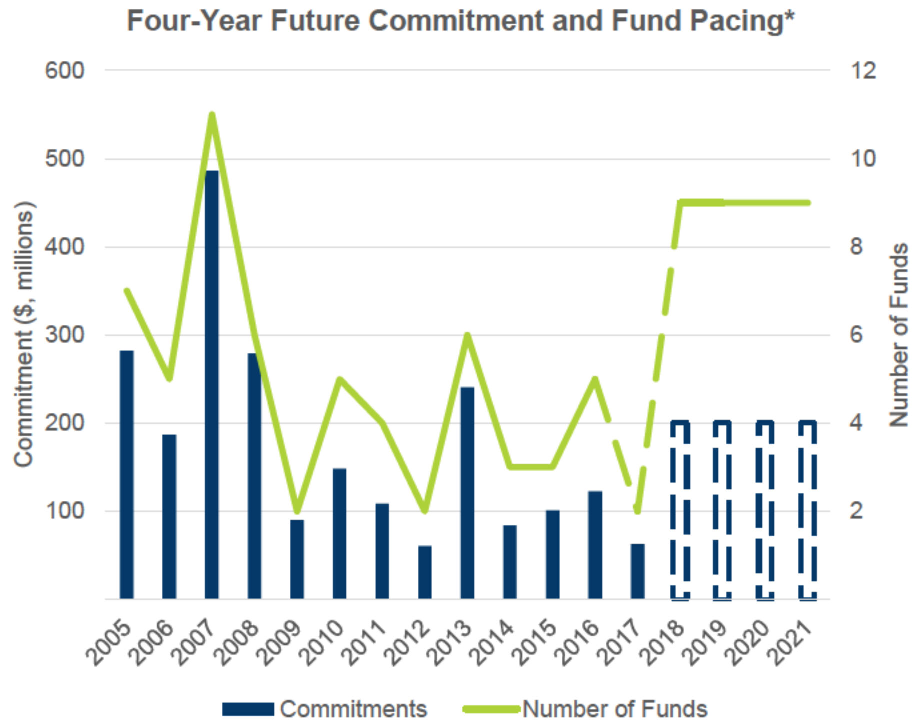
CURRENT PRIVATE EQUITY COMMITMENT AND FUND PACING - PENSION

Existing Portfolio:

- The Pension has averaged between two and six private equity commitments per year
- Annual dollars committed has been in the $100 million range over the past few years

Considerations for Future Allocations:

- Begin increasing the number of commitments on an annual basis to ensure appropriate vintage year and manager diversification
- Increase the annual dollars committed to maintain current 10% allocation target for private equity strategies (see pacing assumptions)



*WPM has excluded the KERS and SPRS plan commitments and total values from the portfolio pacing and implementation analysis

PACING & PORTFOLIO CONSTRUCTION - PENSION

PRIVATE EQUITY PORTFOLIO ALLOCATION - PENSION

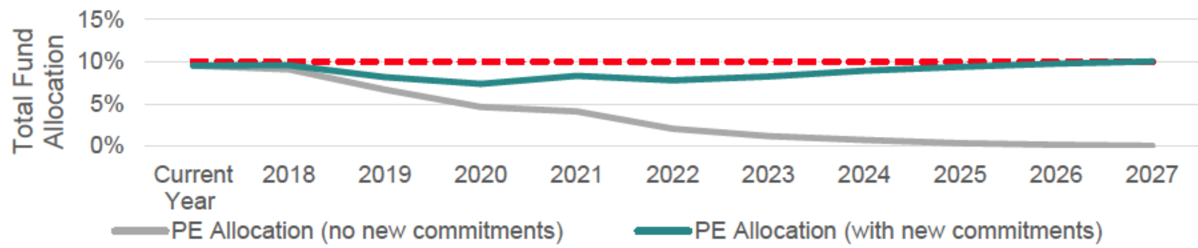
- The Pension plan has a 10% target to private equity investments based on its current Investment Policy Statement
  - The current private equity portfolio includes investments into buyout, venture/growth capital, and special situations managers
- The Pension's current allocation to private equity is approximately 10%, or at target, based on its current Net Asset Value ("NAV")
- With steady annual commitments of **$200 million**, the Pension Plan is expected to maintain its target allocation going forward, with minimal expected deviation
  - Pacing has removed the KERS and SPRS plan commitments and total values from the Total Fund portfolio and assumes no future commitments from either plan
  - The Plan is modeled to have no Total Fund nominal asset growth over the projected time period
  - New commitments should be diversified by type within each vintage year, including buyout, distressed / special situations, and venture/growth investments
  - New commitments should be diversified across the US, Europe, and Asia-Pacific

PRIVATE EQUITY COMMITMENT PACING – PENSION

- With steady annual commitments of approximately $200 million per year, KRS will maintain its 10% allocation allowing for appropriate vintage year diversification

Model Input Summary	
Plan Asset Value as of 9/30/17 in $M *	9,798
Private Markets Target Allocation	10%
Total Plan Expected Nominal Growth Rate (after plan expenditures)	0%

Private Equity Allocation*



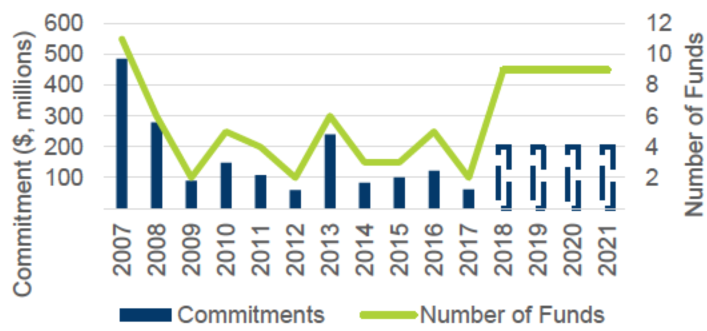
($M)	Current Year	Year 2018	Year 2019	Year 2020	Year 2021	Total Target
Total Fund Market Value *	9,798	9,798	9,798	9,798	9,798	
Private Markets Target Allocation	980	980	980	980	980	
Private Markets Net Asset Value *	932	938	799	723	814	
Over/Under Allocated	(48)	(41)	(181)	(257)	(166)	
Private Markets Net Asset Value	10%	10%	8%	7%	8%	
Over/Under Allocated	0%	0%	-2%	-3%	-2%	
Existing Commitments *						
Net Asset Value	932	889	656	453	400	
Capital Calls		179	54	42	45	
Expected Distributions		243	313	272	126	
Total Future Commitments		200	200	200	200	800
Net Asset Value		50	143	270	414	
Capital Calls		50	99	141	172	
Distributions		-	13	36	68	

*WPM has excluded the KERS and SPRS plan commitments and total values from the portfolio pacing and implementation analysis

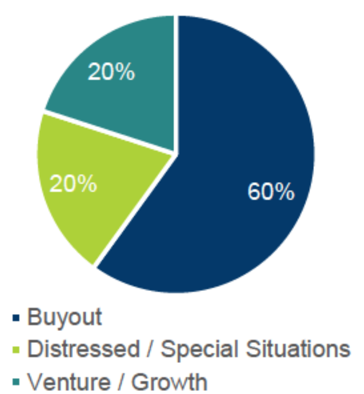
PRIVATE EQUITY TARGET PORTFOLIO CONSTRUCTION - PENSION

Investment Type	Future Commitment ($M)	% Total Future Commitment	Future Annual Commitments ($M)[1] 2018	2019	2020	2021
Total Future Commitments	***800***	***100%***	***200***	***200***	***200***	***200***
Buyout	480	60%	120	120	120	120
Distressed / Special Situations	160	20%	40	40	40	40
Venture / Growth	160	20%	40	40	40	40
Number of Funds	***36***		***9***	***9***	***9***	***9***
Average Commitment Size	***22***		***22***	***22***	***22***	***22***

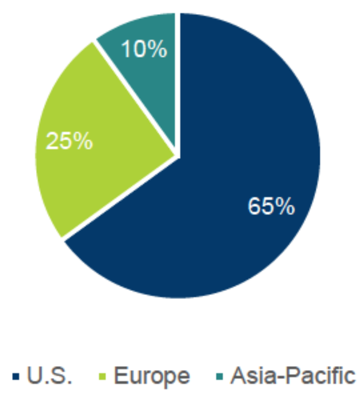
Four-Year Future Commitment and Fund Pacing



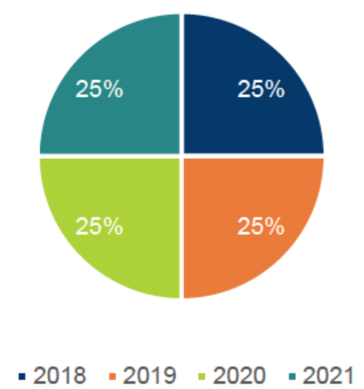
Target Commitment by Sector*



Target Commitment by Geography*



Target Commitment by Vintage*



[1] For this presentation, Future Commitment is defined as commitments made by KRS during the four-year pacing and portfolio implementation timeline (e.g. 2018-2021). WPM Analysis excluded KERS and SPRS pension plan segments in future projections

*Portfolio allocation implementation should be +/- 5%% of these targets.

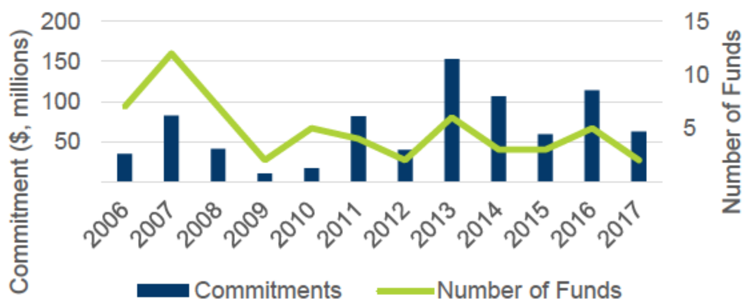
EXISTING PORTFOLIO INSURANCE

Wilshire Private Markets

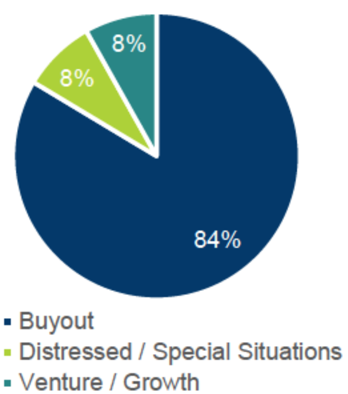
EXISTING PRIVATE EQUITY PORTFOLIO COMPOSITION - INSURANCE

Investment Type	Market Value ($M)	Market Value & Unfunded Commitments($M)*	% Total
Total	***463***	***699***	***100%***
Buyout	382	585	84%
Distressed / Special Situations	31	58	8%
Venture / Growth	51	57	8%
Number of GPs	***42***		
Number of Funds	***72***		
Average Commitment Size	***$12.0***		

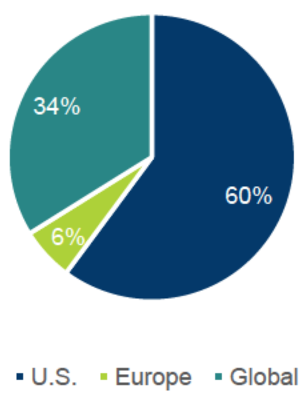
Commitment and Fund Pacing



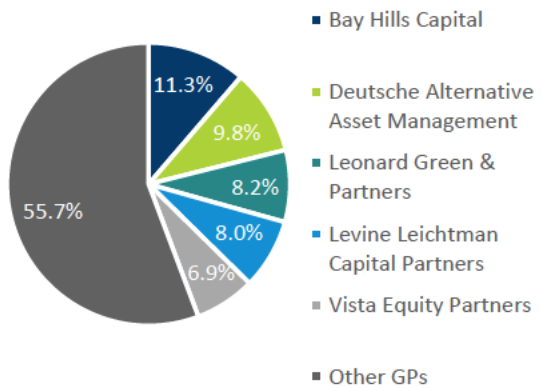
Market Value & Unfunded Commitments(%)



Existing Portfolio Geography (%)



Commitment to GP - Top 5 (%)**

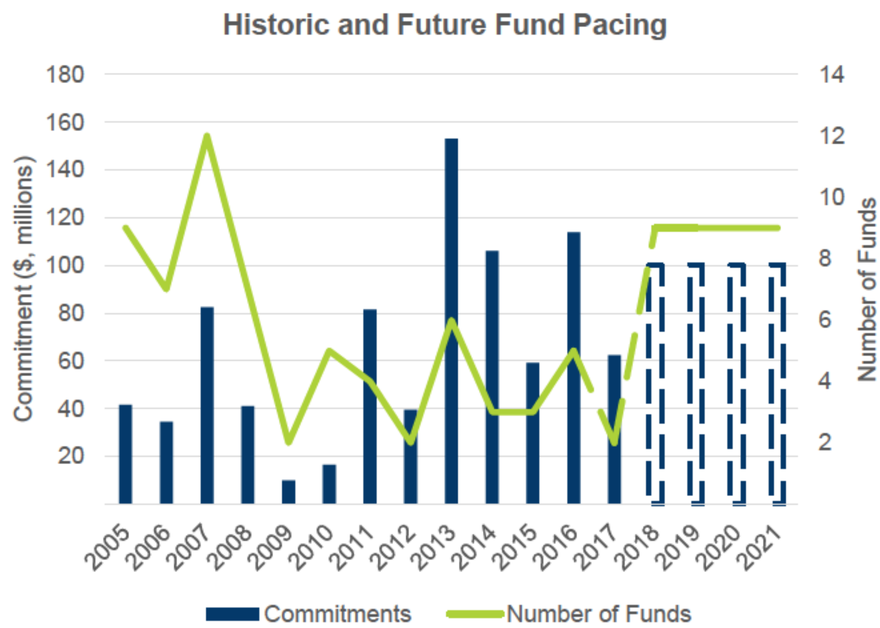


*Market Value & Unfunded Commitments data as of Q3 2017.
** Commitments to GP chart reflects commitment percentages from 2006-present.

CURRENT PRIVATE EQUITY COMMITMENT AND FUND PACING - INSURANCE

Existing Portfolio:

- The Insurance Plan has averaged between two and six private equity commitments per year
- Annual dollars committed has been in the range of $60 - $110 million over the past few years



Considerations for Future Allocations:

- Begin increasing the number of commitments on an annual basis to ensure appropriate vintage year and manager diversification
- Increase the annual dollars committed to maintain current 10% allocation target for private equity strategies (see pacing assumptions)

PACING & PORTFOLIO CONSTRUCTION - INSURANCE

PRIVATE EQUITY PORTFOLIO ALLOCATION - INSURANCE

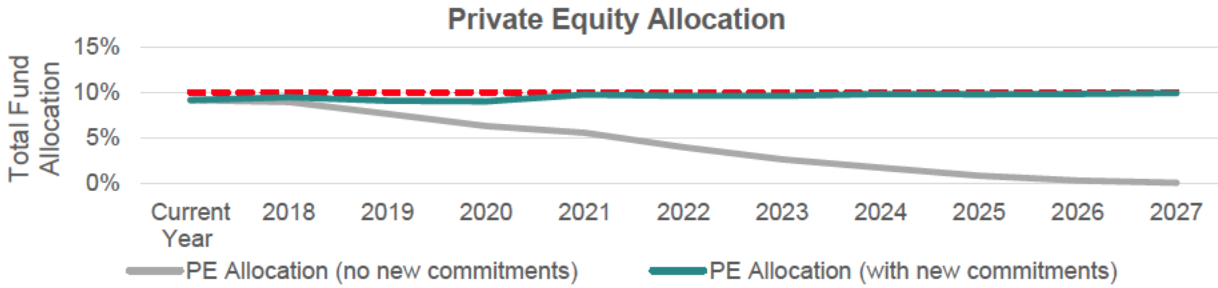
- The Insurance Plan has a 10% target to private equity investments based on its current Investment Policy Statement
  - The current private equity portfolio includes investments into buyout, venture/growth capital, and special situations managers
- The Insurance Plan's current allocation to private equity is approximately 10%, or at target, based on its current Net Asset Value ("NAV")
- With steady annual commitments of **$100 million**, the Insurance Plan is expected to maintain its target allocation going forward, with minimal expected deviation
  - The Plan is modeled to have no nominal asset growth over the projected time period
  - New commitments should be diversified by type within each vintage year, including buyout, distressed / special situations, and venture/growth investments
  - New commitments should be diversified across the US, Europe, and Asia Pacific

Wilshire

PRIVATE EQUITY COMMITMENT PACING - INSURANCE

- With steady annual commitments of approximately $100 million per year, KRS will maintain its 10% allocation target allowing for appropriate vintage year diversification

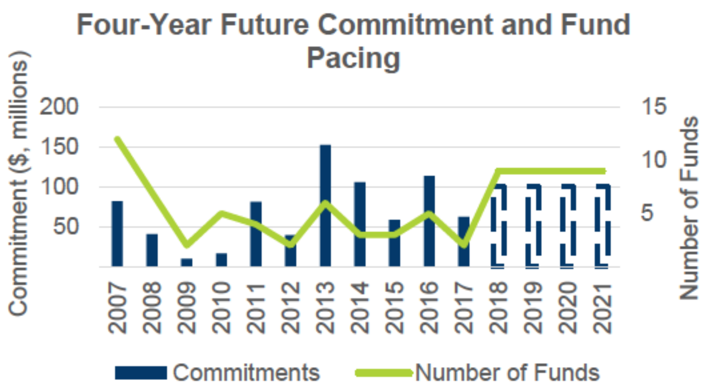
Model Input Summary	
Plan Asset Value as of 10/31/17 in $M	4,972
Private Markets Target Allocation	10%
Expected Nominal Growth Rate (after plan expenditures)	0%

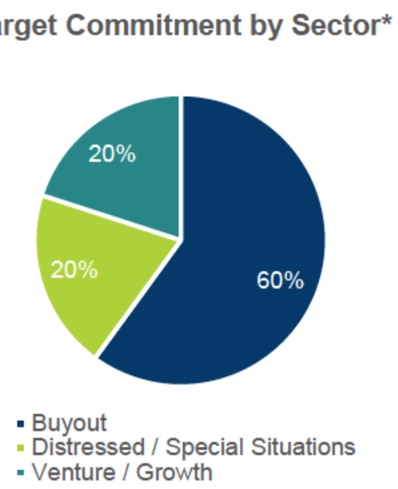


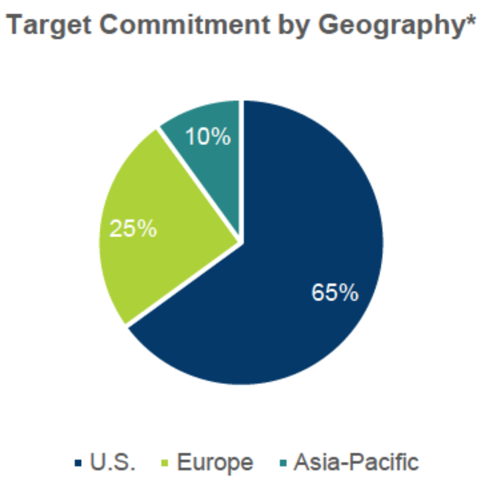
($M)	Current Year	Year 2018	Year 2019	Year 2020	Year 2021	Total Target
Total Fund Market Value	4,972	4,972	4,972	4,972	4,972	
Private Markets Target Allocation	497	497	497	497	497	
Private Markets Net Asset Value	454	470	451	447	484	
Over/Under Allocated	(43)	(27)	(46)	(50)	(13)	
Private Markets Net Asset Value	9%	9%	9%	9%	10%	
Over/Under Allocated	-1%	-1%	-1%	-1%	0%	
Existing Commitments						
Net Asset Value	454	445	379	313	277	
Capital Calls		74	44	32	46	
Expected Distributions		125	147	137	118	
Total Future Commitments		100	100	100	100	400
Net Asset Value		25	71	135	207	
Capital Calls		25	49	71	86	
Distributions		-	6	18	34	

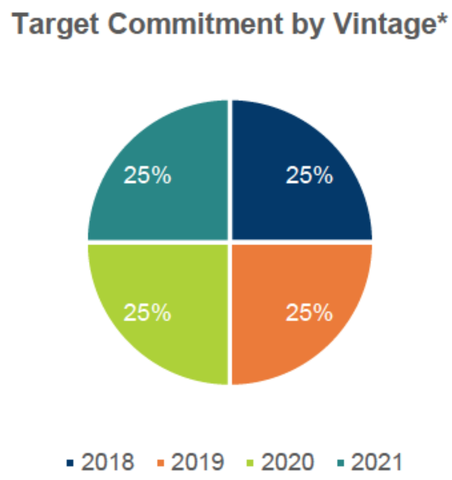
PRIVATE EQUITY TARGET PORTFOLIO CONSTRUCTION - INSURANCE

Investment Type	Future Commitment ($M)	% Total Future Commitment	Future Annual Commitments ($M)[1] 2018	2019	2020	2021
Total Future Commitments	***400***	***100%***	***100***	***100***	***100***	***100***
Buyout	240	60%	60	60	60	60
Distressed Debt / Special Situations	80	20%	20	20	20	20
Venture / Growth	80	20%	20	20	20	20
Number of Funds	***36***		***9***	***9***	***9***	***9***
Average Commitment Size	***11***		***11***	***11***	***11***	***11***









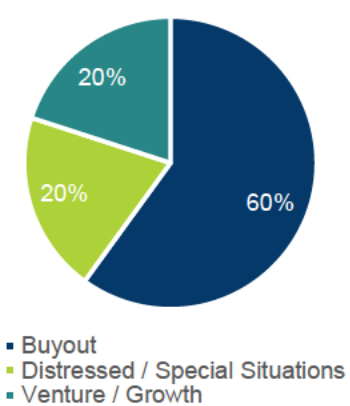
[1] For this presentation, Future Commitment is defined as commitments made by KRS during the four-year pacing and portfolio implementation timeline (e.g. 2018-2021).
*Portfolio allocation implementation should be +/- 5%% of these targets.

PRIVATE EQUITY PORTFOLIO SAMPLE IMPLEMENTATION – PENSION & INSURANCE

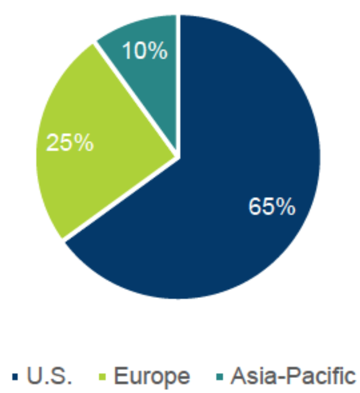
PRIVATE EQUITY TARGET PORTFOLIO CONSTRUCTION – PENSION & INSURANCE

			Future Annual Commitments ($M)[1]			
Investment Type	Future Commitment ($M)	% Total Future Commitment	2018	2019	2020	2021
Total Future Commitments	***1,200***	***100%***	***300***	***300***	***300***	***300***
Buyout	720	60%	180	180	180	180
Distressed / Special Situations	240	20%	60	60	60	60
Venture / Growth	240	20%	60	60	60	60
Number of Funds [2]	***68***		***18***	***18***	***18***	***18***
Average Deal Size	***18***		***17***	***17***	***17***	***17***

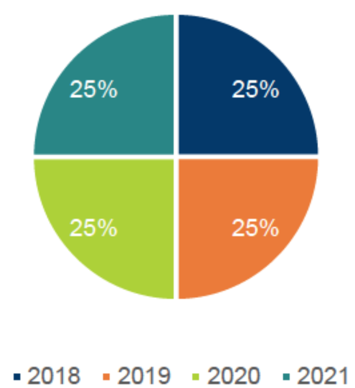
Target Commitment by Sector*



Target Commitment by Geography*



Target Commitment by Vintage*

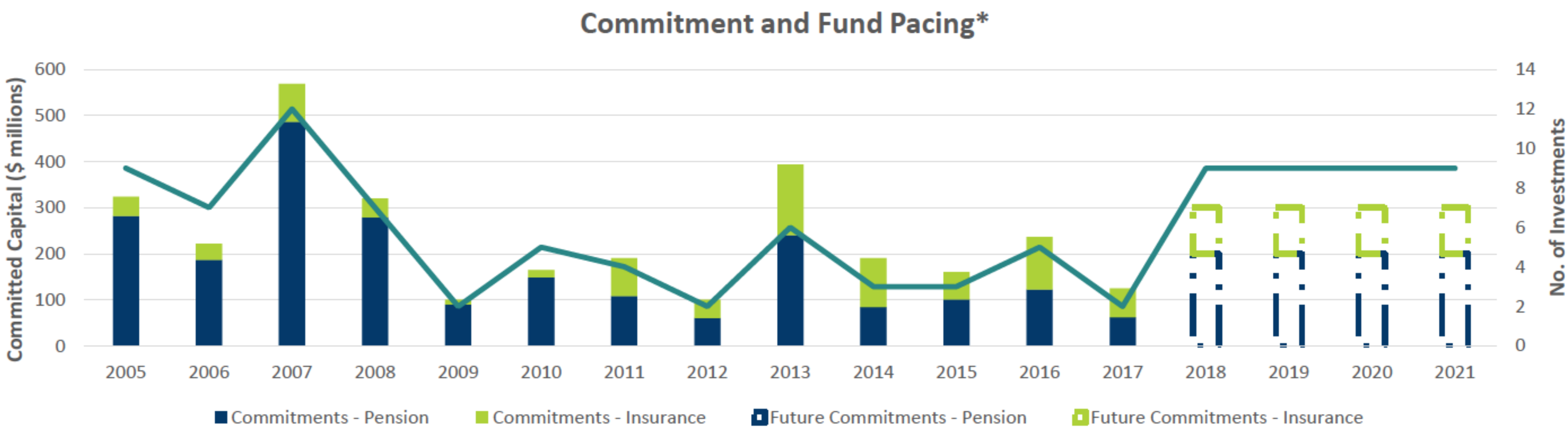


[1] For this presentation, Future Commitment is defined as commitments made by KRS during the four-year pacing and portfolio implementation timeline (e.g. 2018-2021). Future Commitments on this page are representative of both plans' combined annual commitments and number of funds recommended. WPM Analysis excluded KERS and SPRS pension plan segments in future portfolio pacing and implementation.

[2] Number of funds includes commitments from both the pension and insurance plans separately

*Portfolio allocation implementation should be +/- 5%% of these targets.

Private Equity Portfolio Historical Commitment Pacing and Sample Implementation



*Commitment and Fund pacing chart is reflective of KRS' combined commitments between the Pension and Insurance vehicles. Invested Capital per year and Number of Funds per year are representative of KRS' existing portfolio as well as WPM's recommended implementation. Each investment may include commitments from the Pension and Insurance Plans.

Considerations for Future Allocations**:

- Consider increasing the number of commitments by vintage year across plans
  - Average of 6 to 10 commitments per year per plan
  - Expect allocations from the Pension and Insurance Plans each year
- Increase annual dollars committed by plan to maintain 10% plan targets
  - Average $300 million across the Pension and Insurance Plans annually
- Diversify annual commitments by investment type, geography, and GP

** WPM has excluded the KERS and SPRS plan commitments and total values from the portfolio pacing and implementation analysis

Wilshire Private Markets

KRS PRIVATE EQUITY PORTFOLIO IMPLEMENTATION – PENSION & INSURANCE

Fund	General Partner	Geography	Vintage	Future Commitment Pension ($M)*	Future Commitment Insurance ($M)*	Total Future Commitment ($M)*	Target Allocation Percent
Total				***200***	***100***	***300***	***25%***
Buyout				***120***	***60***	***180***	***15%***
Reserved Buyout U.S. 2018	*TBD*	*U.S.*	*2018*	*56*	*25*	*81*	*7%*
Reserved Buyout U.S. 2018	*TBD*	*U.S.*	*2018*	*16*	*9*	*25*	*2%*
Reserved Buyout Europe 2018	*TBD*	*Europe*	*2018*	*17*	*9*	*26*	*2%*
Reserved Buyout Europe 2018	*TBD*	*Europe*	*2018*	*11*	*6*	*17*	*1%*
Reserved Buyout Asia-Pacific 2018	*TBD*	*Asia-Pacific*	*2018*	*20*	*10*	*30*	*3%*
Distressed / Special Situations				***40***	***20***	***60***	***5%***
Reserved Distressed / Special Situations U.S. 2018	*TBD*	*U.S.*	*2018*	*20*	*10*	*30*	*2.5%*
Reserved Distressed / Special Situations Europe 2018	*TBD*	*Europe*	*2018*	*20*	*10*	*30*	*2.5%*
Venture / Growth				***40***	***20***	***60***	***5%***
Reserved Venture / Growth U.S. 2018	*TBD*	*U.S.*	*2018*	*29*	*14*	*43*	*4%*
Reserved Venture / Growth Europe 2018	*TBD*	*Europe*	*2018*	*11*	*6*	*17*	*1%*

* For this presentation, Future Commitment is defined as KRS' allocations within the four-year pacing and portfolio implementation horizon (e.g. 2018-2021). Future Allocation should be +/- 5% of KRS' target allocations. WPM has excluded the KERS and SPRS plan commitments and total values from the portfolio pacing and implementation analysis

FUNDS FOR CONSIDERATION

NEW STATE CAPITAL PARTNERS FUND II ($200 million)

[redacted]

[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
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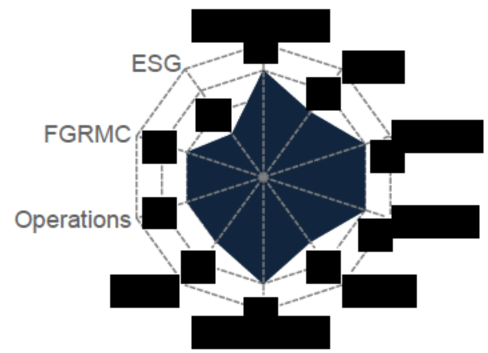


[redacted]

[redacted]

[redacted]

STRATEGIC VALUE SPECIAL SITUATIONS FUND IV ($1.75 billion)

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

APPENDIX

APPENDIX A: PENSION PRIVATE EQUITY PLAN ALLOCATIONS

	PE Allocation		Total Plan Market Value ($M)	Over / (Under) Allocation	
	Market Value ($M)	Allocation %		Dollars ($M)	Allocation %
KERS	244.7	12.0%	2,042.2	40.5	1.98%
KERSH	58.9	9.2%	637.2	(4.9)	-0.76%
CERS	626.1	8.9%	7,021.6	(76.0)	-1.08%
CERSH	212.2	9.1%	2,337.4	(21.5)	-0.92%
SPRS	20.7	8.1%	254.7	(4.8)	-1.87%
Total	**1,162.7**	**9.5%**	**12,293.0**	**(66.6)**	**-0.54%**
Total ex-KERS & SPRS	**897.2**	**9.0%**	**9,996.2**	**(102.4)**	**-1.02%**

Data is as of January 1, 2018 as provided by KRS

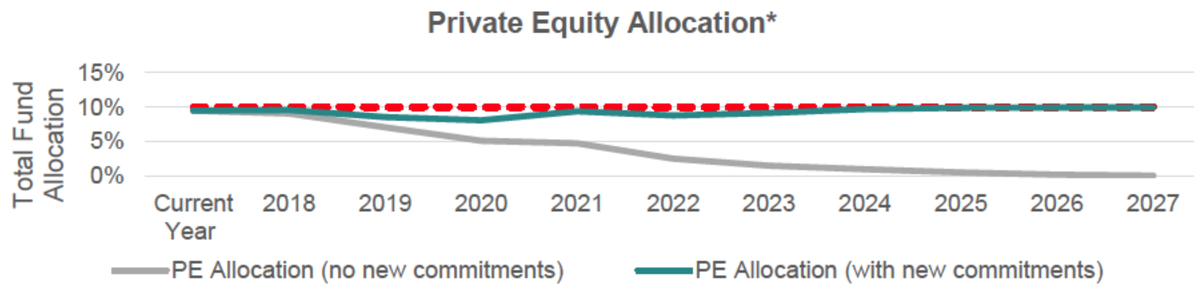
- Other than the KERS plan, each of the KRS Pension Plans are under allocated to private equity
- Excluding the KERS and SPRS Pension Plan segments, the private equity market value is approximately 9% and is underfunded relative to the target allocation
    - The KERS and SPRS Plans are no longer making commitments to private equity fund vehicles

Wilshire Private Markets

APPENDIX B: PRIVATE EQUITY COMMITMENT PACING – PENSION DECREASING VALUE

- Assuming a case where Total Plan expenditures are expected to exceed investment returns by 5% per year, annual commitments scaling from $200 million down to $100 million per year over five years, KRS will maintain its 10% allocation allowing for appropriate vintage year diversification.

Model Input Summary	
Plan Asset Value as of 9/30/17 in $M	9,798
Private Markets Target Allocation	10%
Expected Nominal Growth Rate (after plan expenditures)	-5%



($M)	Current Year	Year 2018	Year 2019	Year 2020	Year 2021	Total Target
Total Fund Market Value	9,798	9,798	9,308	8,843	8,401	
Private Markets Total Allocation	980	980	931	884	840	
Private Markets Net Asset Value	932	938	799	717	790	
Over/Under Allocated	(48)	(41)	(132)	(168)	(50)	
Private Markets Net Asset Value	10%	10%	9%	8%	9%	
Over/Under Allocated	0%	0%	-1%	-2%	-1%	
Existing Commitments						
Net Asset Value	932	889	656	453	400	
Capital Calls		179	54	42	45	
Expected Distributions		243	313	272	126	
Total Future Commitments		200	200	175	150	725
Net Asset Value		50	143	263	390	
Capital Calls		50	99	135	153	
Distributions		-	13	36	67	

* WPM has excluded the KERS and SPRS plan commitments and total values from the portfolio pacing and implementation analysis

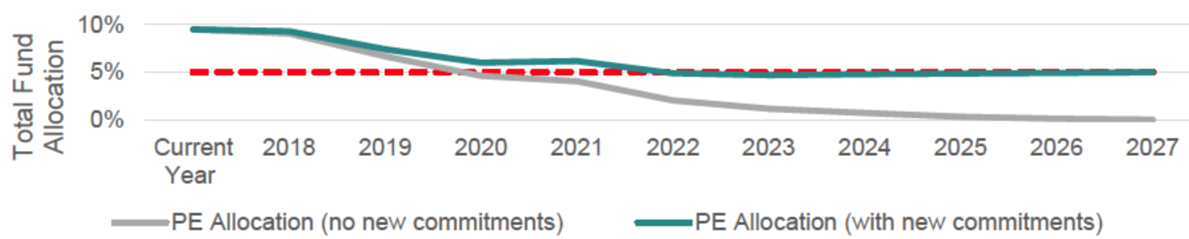
Wilshire

APPENDIX C: PRIVATE EQUITY COMMITMENT PACING – PENSION REDUCED TARGET

- Assuming a case where the Private Markets allocation is reduced to 5% of Total Plan assets, with steady annual commitments of approximately $100 million per year, KRS will maintain its 5% allocation allowing for appropriate vintage year diversification

Model Input Summary	
Plan Asset Value as of 9/30/17 in $M	9,798
Private Markets Target Allocation	5%
Expected Nominal Growth Rate (after plan expenditures)	0%

Private Equity Allocation*



($M)	Current Year	Year 2018	Year 2019	Year 2020	Year 2021	Total Target
Total Fund Market Value	9,798	9,798	9,798	9,798	9,798	
Private Markets Total Allocation	490	490	490	490	490	
Private Markets Net Asset Value	932	914	727	588	607	
Over/Under Allocated	442	424	238	98	117	
Private Markets Net Asset Value	10%	9%	7%	6%	6%	
Over/Under Allocated	5%	4%	2%	1%	1%	
Existing Commitments						
Net Asset Value	932	889	656	453	400	
Capital Calls		179	54	42	45	
Expected Distributions		243	313	272	126	
Total Future Commitments		100	100	100	100	400
Net Asset Value		25	71	135	207	
Capital Calls		25	49	71	86	
Distributions		-	6	18	34	

* WPM has excluded the KERS and SPRS plan commitments and total values from the portfolio pacing and implementation analysis

Item	IPS Location	Current IPS Requirement Language	Request	Reason	Staff Note
4	Section VIII: Section D	No more than 20 % of total net assets of the private equity portfolio may be invested in a single industry within a particular sector.	**Removal**	In reality, staff has no way to control the industries into which a private equity fund invests, and has no remedy for enforcing this restriction.	Staff is requesting that this guideline be removed from the IPS.
5	Section VIII: Section D	No more than 10% of total net assets of the private equity portfolio may be invested in any single equity or debt related assets.	**Removal**	In reality, staff has no way to control the industries into which a private equity fund invests, and has no remedy for enforcing this restriction.	Staff is requesting that this guideline be removed from the IPS.

Staff is requesting that the following Investment Policy Statement guidelines be modified as presented:

Item	IPS Location	Current IPS Requirement Language	Request	Reason	Staff Note
6	Section 4: 3	Total assets assigned to the selected manager shall not exceed 25% of that firm's total assets under management and shall not exceed 25% of a firm's total assets under management in a commingled product. Separate accounts or funds of one are not included in this 25% limitation for commingled products	**Modification**	On-going monitoring of this requirement would require staff to know the total AUM of every external invesment manager at all times.	1. Add "At Time of Purchase" to the guideline. 2. Remove the Separate Account or Fund of One exclusion
7	Section VIII: Section F Pg 20	No more than 50% of the total net assets of the Real Return portfolio may be invested in any one registered investment vehicle, mutual fund, or separately managed account	**Modification**	This requirement can be monitored when a new investment is made, but provides staff no remedy to enforce in an on-going fashion.	Add "At time of purchase" to the guideline
8	Section VIII: Section F Pg 21	No more than 20% of the total net assets of the Real Return portfolio may be invested in any single closed-end or open-end limited partnership or other unregistered investment vehicle.	**Modification**	This requirement can be monitored when a new investment is made, but provides staff no remedy to enforce in an on-going fashion.	Add "At time of purchase" to the guideline
9	Section VIII: Section H Pg. 24	At all times, at least 25.0% of the Absolute Return portfolio as a whole is to be available in quarterly or better liquidity vehicles	**Modification**	This requirement can be monitored when a new investment is made, but provides staff no remedy to enforce in an on-going fashion.	Remove "At all times" and replace with "At time of purchase"
10	Section VIII: Section H Pg. 24	At all times, no more than 50.0% of the Absolute Return portfolio as a whole is to be committed to vehicles that provide liquidity on a greater than annual basis.	**Modification**	This requirement can be monitored when a new investment is made, but provides staff no remedy to enforce in an on-going fashion.	Remove "At all times" and replace with "At time of purchase"

***Motion: To grant the guideline waivers as requested, and to accept the recommended changes guideline changes as presented*.**

WILSHIRE ASSOCIATES

Wilshire Consulting

Benchmarking Analysis

February 6, 2018

PENSION & INSURANCE BENCHMARKS

- The current KRS Pension Plan and Insurance Plan benchmarks are highlighted below

Asset Class	Index	Pension (%)	Insurance (%)
U.S. Equity	Russell 3000 Index	23.6%	24.5%
Non-U.S. Equity	MSCI ACWI ex U.S. IMI Index ($Net)	23.2%	24.5%
Global Fixed Income	Bloomberg Barclays Universal Index	9.0%	8.0%
Credit Fixed Income	Bloomberg Barclays U.S. High Yield Index	9.0%	8.0%
Real Estate	NCREIF ODCE Index (Net)	5.0%	5.0%
Absolute Return	HRFI Diversified FoF Index	10.0%	10.0%
Real Return	Short Term (<5 Yrs): Actual Performance Long Term (>5 Yrs): CPI + 3%	8.0%	8.0%
Private Equity	Short Term (<5 Yrs): Actual Performance Long Term (>5 Yrs): Russell 3000 Index + 3%	10.0%	10.0%
Cash	Citi Group 3-Month Treasury Bill	2.2%	2.0%

*October 1, 2017 to present

TOTAL FUND BENCHMARKS

- Total Fund benchmarks to reflect strategic asset allocation policy
  - One benchmark for each of 10 underlying Pension/Insurance Plans
  - Weighted roll up of five Pensions into one master Pension Plan
  - Weighted roll up of five Insurance plans into one master Insurance Plan
    - » Wilshire supports this approach and will recommend going forward
- Policy targets in Total Fund benchmark should remain static (some exceptions)
  - Allows effect of over/under weight allocations to contribute to tracking error
    - » Provides for more robust attribution of relative performance differences
    - » Improves ability to manage risk within Total Fund
  - Avoids letting benchmark “chase” allocation
  - Systematic changes to target weights in Total Fund benchmark can make sense if reflective of a planned implementation of asset allocation over a stated time period
    - » Established and agreed upon in advance

ASSET CLASS BENCHMARKS

- U.S. Equity
  - Russell 3000 Index
  - Current structure analysis in progress modeled relative to Russell 3000
    - » Wilshire supports
- Non-U.S. Equity
  - Recently revised to MSCI ACWI ex US IMI ($Net) Index
  - Current structure analysis in progress modeled relative to MSCI ACWI ex US IMI ($Net)
    - » Wilshire supports
- Global Fixed Income and Credit Fixed Income
  - Bloomberg Barclays Universal Index and U.S. High Yield Index
    - » Evaluating both as part of Fixed Income structure analysis in progress

ASSET CLASS BENCHMARKS

- Real Estate
  - NCREIF ODCE Index
  - Reflective of broad open ended universe of core real estate funds
    - Wilshire supports
- Absolute Return
  - HFRI Diversified Fund-of-Funds Index
  - Currently evaluating as part of overall hedge fund structure and objectives review
- Real Return
  - Actual performance utilized for periods less than 5 years
  - CPI + 3% utilized for periods greater than 5 years
  - Currently evaluating as part of overall real return structure and objectives review

ASSET CLASS BENCHMARKS

- Private Equity
  - Actual performance utilized for periods less than 5 years
  - Russell Index + 3% utilized for periods greater than 5 years
  - Benchmarking challenges given public market volatility vs. private market valuation adjustments based on accounting
  - Challenge in how differences contribute to Total Fund relative performance over short periods
    - » Lag in valuations can cause tracking error, over/under performance in short term
      - Leads to misunderstanding of Total Fund success
    - » Using actual performance neutralizes impact on Total Fund relative performance
      - Allows for separate focus on actual private equity results
    - » Public markets plus a premium = good measure over very long term
  - Internal Rate of Return (IRR) analysis is critical
  - Public Markets Equivalent (PME) and private peer universe comparisons for robust interpretation of results

WILSHIRE ASSOCIATES

Wilshire Consulting

Asset Liability Analysis – Process Update

February 7, 2018

ASSET LIABILITY ANALYSIS

- End Goal
  - May 2018 Investment Committee meeting
    - » Recommend and approve the asset allocation policy

- Where are we currently?
  - Modeling Liabilities
    - » Received actuarial valuations from KRS' actuary
    - » Working to model projected future cash flows and benefit payments for all plans
  - Modeling Assets
    - » Evaluating constraints and considering additional asset classes for inclusion
    - » Testing illiquidity impact of the current policy allocation to meet cash flow needs
    - » Focusing on the role of hedge funds in the policy allocation

Wilshire

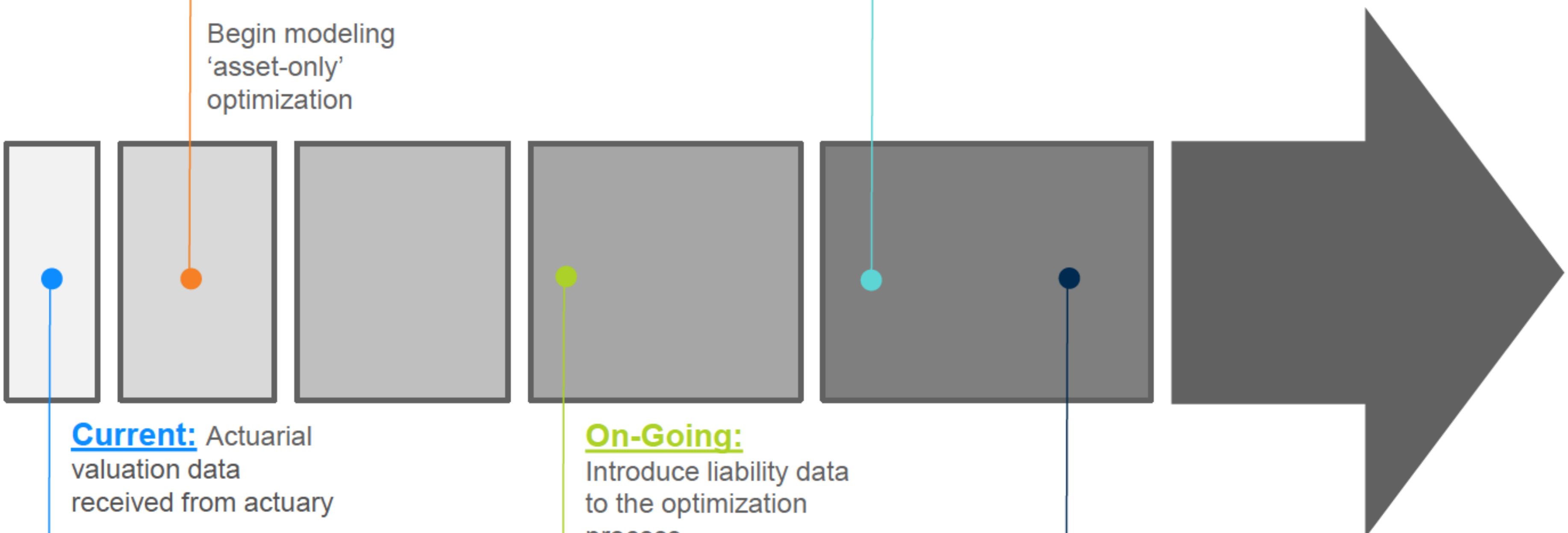
TIMELINE

Near-term:
Continue to review role of hedge funds

Discuss potential illiquidity capacity

Begin modeling ‘asset-only’ optimization

Spring 2018:
Prepare recommendation for the May 2018 Investment Committee meeting



Current: Actuarial valuation data received from actuary

Evaluate constraints and additional asset classes for inclusion

Review the role of hedge funds in the policy allocation

On-Going:
Introduce liability data to the optimization process

Stress test illiquidity capacity

Review modeling iterations with Staff

May 2018:
Recommend and approve the asset allocation policy

KENTUCKY RETIREMENT SYSTEMS

INVESTMENTS

To: Investment Committee – Kentucky Retirement Systems

From: Anthony Chiu, Investment Officer

Date: February 6, 2018

Subject: Hedge Fund Redemptions Update

All,

Starting in late 2016, KRS has been refining its hedge fund portfolio. Funds that were deemed to have excess beta, high fees relative to their opportunity, or AUM concerns have been redeemed. This helped increase the concentration of the portfolio and is something that we are continuing to do so that each remaining investment can be more impactful - rather than diluted through overdiversification.

During the 4th quarter of 2017, KRS staff asked Wilshire (our recently hired consultant) to evaluate our direct hedge fund holdings. After reviewing their recommendations and KRS staff calls and meetings with each manager, we have decided to redeem from the following six managers: Anchorage, BlackRock GAO, Coatue, HBK, Karya, and Tide Point. Detail on each manager is below.

Anchorage
Strategy: Event driven / distressed equity and credit

Fund assets: $14.4 billion
Firm assets: $17.1 billion

[redacted]

KRS investment: $38 million ($27 million Pension; $11 million Insurance)
KRS initial direct investment date: 7/1/2016

Redemption Commentary
The 2 year lockup that resets later this year was a significant consideration. Additionally, Anchorage has a reputation as a credit manager, but a closer look at the portfolio reveals significant event-driven equity exposure. This includes two top positions that are illiquid and have been held for several years like a private equity investment. The fund's size also reduces its opportunity set, while allowing Anchorage to collect a significant fee stream regardless of performance (which has been underwhelming in recent years).

Performance

	Anchorage	HFRX ED: Credit Arbitrage Index	S&P 500	MSCI ACWI
2017	7.5%	6.8%	21.8%	24.0%
2016	2.3%	10.3%	12.0%	7.9%
2015	1.3%	-4.3%	1.4%	-2.4%
2014	9.1%	2.9%	13.7%	4.2%
2013	20.2%	12.7%	32.4%	22.8%

BLACKROCK® Global Alpha Opportunities Fund

BlackRock Global Alpha Opportunities (GAO) Fund
Strategy: Equity market neutral

Fund assets: $0.9 billion
Firm assets: $6,300 billion

[redacted] [redacted]

KRS investment: $40 million ($29 million Pension; $11 million Insurance)
KRS initial direct investment date: 7/1/2016

Redemption Commentary

Our portfolio is not large enough to require three equity market neutral managers, and we did not view the fund as significantly differentiated compared to peers. Alignment is also a significant issue, as the success or failure of this fund is immaterial to BlackRock overall and the firm's $100 billion Systematic Active Equity platform.

Performance

	BlackRock GAO	HFRX EH: Equity Market Neutral Index	S&P 500	MSCI ACWI
2017	5.8%	1.7%	21.8%	24.0%
2016	-10.1%	-5.1%	12.0%	7.9%
2015	19.2%	5.5%	1.4%	-2.4%
2014	-1.2%	3.6%	13.7%	4.2%
2013	11.4%	1.7%	32.4%	22.8%

COATUE

Coatue
Strategy: Long / short equity focused on the technology, media, and telecommunications sectors

Fund assets: $9 billion
Firm assets: $12 billion

[redacted]

KRS investment: $28 million ($21 million Pension; $7 million Insurance)
KRS initial direct investment date: 7/1/2015

Redemption Commentary

The 3 year lock that resets at the end of June was a significant consideration. While Coatue deserves credit for capturing a significant amount of the tech stock rally in recent years, this is an expensive way to invest in large tech stocks like Facebook, Apple, Tencent, and Alibaba which are also the top holdings of inexpensive technology ETFs. Coatue's size also constrains its opportunity set, especially on the short side. This is perhaps why the short book includes S&P and Nasdaq puts alongside an overly broad portfolio of 80 stocks, which is down from 250 in early 2016.

Performance

	Coatue (1 and 20)	**HFRX EH: Fundamental Growth Index**	**S&P 500**	**MSCI ACWI**
2017	25.2%	20.1%	21.8%	24.0%
2016	1.7%	-6.6%	12.0%	7.9%
2015	10.2%	-2.3%	1.4%	-2.4%
2014	-2.1%	3.4%	13.7%	4.2%
2013	18.6%	4.2%	32.4%	22.8%

HBK

Strategy: Multi-strategy – event driven, corporate credit, quantitative strategies, structured credit

Fund assets: $8.0 billion
Firm assets: $10.7 billion

[redacted] [redacted]

KRS investment: $63 million ($45 million Pension; $18 million Insurance)
KRS initial direct investment date: 11/1/2013

Redemption Commentary

While HBK is a multi-strategy fund, the largest allocation is to event-driven equity, an area where we are reducing exposure due to excess beta and lack of differentiation. Given HBK's size, they are compelled to be in the largest, most trafficked trades, such as Yahoo / Alibaba, Tencent / Naspers, NXP Semiconductors / Qualcomm, and Shire / AbbVie. The fund's decision making process is unusual, as it involves co-CIOs that oversee 15 separate portfolio management teams. Finally, performance has been underwhelming despite significant fund-level leverage (3-4x notional).

Performance

	HBK	**HFRX EH: Multi-Strategy Index**	**S&P 500**	**MSCI ACWI**
2017	5.2%	7.9%	21.8%	24.0%
2016	8.4%	8.1%	12.0%	7.9%
2015	-2.7%	7.3%	1.4%	-2.4%
2014	3.1%	1.9%	13.7%	4.2%
2013	7.6%	16.5%	32.4%	22.8%

KARYA

Karya
Strategy: Global macro

Fund assets: $0.6 billion
Firm assets: $1.0 billion

[redacted]

KRS investment: $24 million ($17 million Pension; $7 million Insurance)
KRS initial direct investment date: 4/1/2017

Redemption Commentary
Several of the factors that led to Karya's redemption are structural. The CIO is the sole decision maker and owner of the firm, which enhances an already high level of firm risk. The firm also has a concentrated investor base, with the top five investors comprising nearly 80% of assets. Karya also seems to have 1 or 2 bad months (-3% or worse) every year that dampen returns and were attributed to correlations breaking down – which is ideally a time that a global macro manager could shine. Finally, Wilshire believes there are stronger peers available in this strategy.

Performance

	Karya (2 and 20)	**HFRX Macro: Active Trading Index**	**S&P 500**	**MSCI ACWI**
2017	10.5%	-0.8%	21.8%	24.0%
2016	3.8%	5.6%	12.0%	7.9%
2015	2.3%	-0.1%	1.4%	-2.4%
2014	10.9%	6.5%	13.7%	4.2%
2013	2.5%	3.4%	32.4%	22.8%

TIDE POINT
CAPITAL MANAGEMENT

Tide Point
Strategy: Long / short equity focused on the industrial, materials, and energy sectors

Fund assets: $1.3 billion
Firm assets: $1.3 billion

[redacted] [redacted]

KRS investment: $23 million ($16 million Pension; $7 million Insurance)
KRS initial direct investment date: 4/1/2017

Redemption Commentary
Tide Point invests in cyclical sectors like energy and materials that have been significantly out of favor in recent years. However, the fund's short timeframe (average holding period of 3-6 months) can be a setup for getting whipsawed, rather than profiting from the behavioral foibles of other investors in cyclical sectors. The short side also appears to be an afterthought, with SPY puts representing the fund's top holding on its latest 13F and little mention of single name shorts during diligence. Finally, the firm's trading orientation adds to the high fees, as the entire portfolio typically turns over on a dollar basis in less than two months.

Performance

	Tide Point	**HFRX Equity Hedge: Energy/Basic Materials Index**	**S&P 500**	**MSCI ACWI**
2017	-3.5%	9.3%	21.8%	24.0%
2016	16.2%	6.6%	12.0%	7.9%
2015	-2.4%	3.2%	1.4%	-2.4%
2014	18.1%	-1.1%	13.7%	4.2%
2013	20.7%	7.0%	32.4%	22.8%

Wilshire

Prepared for

KENTUCKY RETIREMENT SYSTEMS

WILSHIRE CONSULTING

KRS Marketable Alternatives Direct Investments Review

David Lindberg, Managing Director
Jonathan Miles, CFA, CAIA, Managing Director
Jamie Gnall, CFA, CAIA, Senior Associate

December 7th, 2017

Wilshire Associates

AGENDA

Review Engagement Plan

Summary of Initial Due Diligence

Preliminary Structuring Review

Investment Philosophy

Investment Beliefs

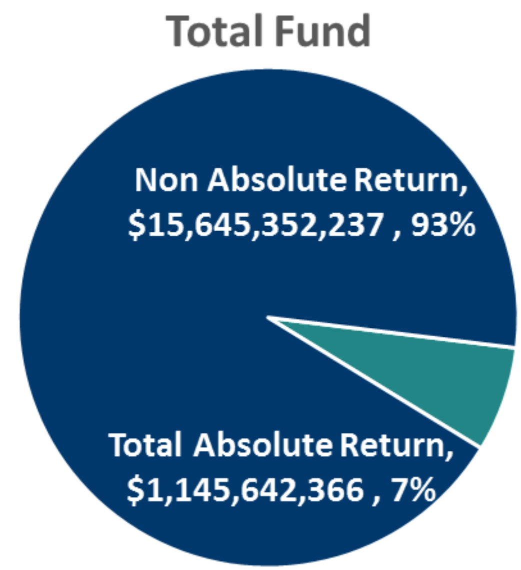
Investment Structuring

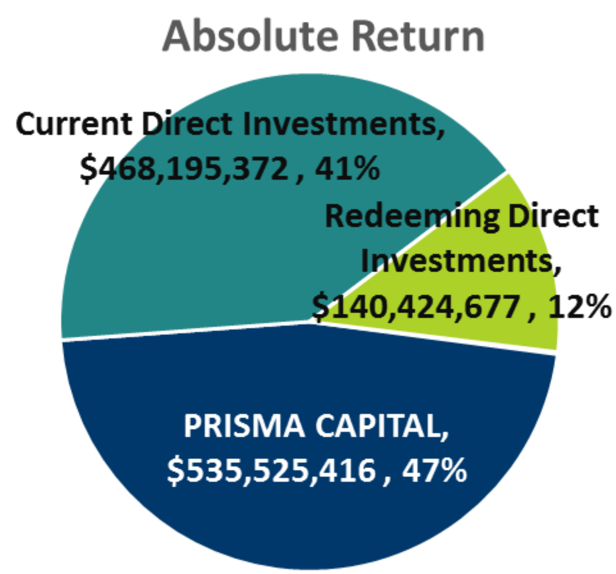
Current Engagement Plan

1. Review existing exposures and classify each managers as immediate termination, likely replace, potentially replace, maintain investment
   - Completed: 12/6 Committee meeting
2. Assess Prisma Daniel Boone custom fund of one
   – Targeted Completion: End of Q1-2018
3. Asset Allocation Phase:
   – Work collaboratively with KRS to determine the most appropriate use and role for Marketable Alternatives on an integrated basis
   – Update the KRS investment policies as necessary.
   – Targeted Completion: End of Q1-2018
4. Investment Structuring
   – Specific manager and sizing recommendations
   – Develop timeline to full implementation
   – Targeted Completion: Q2/Q3 2018

Review of Current Direct Investments

- Wilshire was directed to review the current hedge fund manager exposures:
  - A preliminary qualitative review of the direct investments is complete
  - As detailed in the attached report, Wilshire does not recommend any immediate terminations
- Due to the compressed time frame and limited accessibility, Wilshire was not able to assess the Daniel Boone exposures in time for this committee meeting.





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INITIAL DUE DILIGENCE SUMMARY

Terminate Immediately	Most Likely Replace (5 Mgrs, $154mm)	Potentially Replace (5 Mgrs, $99.3mm)	Maintain (6 Mgrs, $214mm)
There are no managers with sufficient red flags to warrant immediate recommendation of termination.	[redacted] *Diversifying*	[redacted] *Directional*	[redacted] *Diversifying*
	[redacted] *Diversifying*	[redacted] *Directional*	[redacted] *Diversifying*
	[redacted] *Diversifying*	[redacted] *Diversifying*	[redacted] *Diversifying*
	[redacted] *Directional*	[redacted] *Diversifying*	[redacted] *Directional*
	[redacted] *Directional*	[redacted] *Diversifying*	[redacted] *Diversifying*
			[redacted] *Directional*

Direct Investment Observations

- Of the 15 direct hedge fund investments reviewed, Wilshire will likely recommend retaining 11.
- The current direct portfolio is heavily skewed towards Diversifying Strategies, inline with previous committee mandates.
- The Directional strategies tend to be less reliant on market beta then many peers
- Only five managers have track records through the crisis: Anchorage, Davidson Kempner, HBK, SRS, and Systematica
- Consistent with a risk based approach, managers with higher volatility tend to have lower allocations while the three multi-strategy managers all have allocations over 10%
- Equity Market Neutral strategies are a large portion of the Diversifying allocation, increasing stock selection risk
- Systematic Macro & Risk Premia are under-represented

PRELIMINARY STRUCTURING REVIEW

Wilshire Consulting

ABSOLUTE RETURN PORTFOLIO SUMMARY

Manager	Strategy	Sub-Strategy	As of 8/31/2017	Weight	Post
Directional HFs				**PROGRAM**	**Redemptions**
SRS Partners US	Equity Hedge	Sector- Technology	$10,551,457	0.9%	1.1%
Tide Point Partners	Equity Hedge	Sector- Cyclicals	$22,939,363	2.0%	2.4%
Anchorage Capital	Event Driven	Distressed	$36,798,869	3.2%	3.9%
Governors Lane Fund	Event Driven	Multi-Strategy	$39,880,584	3.5%	4.3%
Tricadia Select	Event Driven	Credit	$6,573,733	0.6%	0.7%
TOTAL DIRECTIONAL			**$240,781,086**	**21.0%**	**12.4%**
Diversifying HFs					
Blackrock GAO Fund	Equity Hedge	Equity Market Neutral	$39,657,122	3.5%	4.2%
Systematica BlueMatrix Fund	Equity Hedge	Equity Market Neutral	$17,207,174	1.5%	1.8%
Gotham Neutral Strategies	Equity Hedge	Equity Market Neutral	$22,370,255	2.0%	2.4%
Davidson-Kempner LP	Event Driven	Multi-Strategy	$53,105,667	4.6%	5.7%
Liquidalts H20 Force	Macro	Systematic Diversified	$22,745,536	2.0%	2.4%
Karya Fund LLC	Macro	Discretionary Thematic	$21,839,052	1.9%	2.3%
Myriad Opportunities	Macro	Asia	$47,008,500	4.1%	5.0%
Credit Suisse SPF	Relative Value	Structured Credit	$41,502,343	3.6%	4.4%
HBK II	Relative Value	Multi-Strategy	$63,502,578	5.5%	6.8%
Prudential GLRV	Relative Value	Fixed Income-Arb	$22,513,139	2.0%	2.4%
TOTAL DIVERSIFYING			**$367,838,963**	**32.1%**	**37.5%**
TOTAL DIRECT MANAGERS	***# of Managers***	***28***	**$608,620,049**	**53.1%**	**0.0%**
Directional Managers in Redemption			***$124,037,079***	***10.8%***	
Diversifying Managers in Redemption			***$16,387,598***	***1.4%***	
DIRECT - POST REDEMPTIONS	***# of Managers***	***15***	**$468,195,372**	**40.9%**	**49.9%**
PRISMA CAPITAL			**$535,525,416**	**46.7%**	**50.1%**
In Redemption			***$66,009,000***	***5.8%***	
Other FoFs			**$1,496,900**	**0.1%**	**0.0%**
TOTAL MARKETABLE ALTERNATIVES			**$1,145,642,366**	**100.0%**	**100.0%**
TOTAL ALTS - POST REDEMPTIONS/FOF CLOSURES			***$937,711,789***		
TOTAL PLAN			**$16,790,994,603**	**6.8%**	**5.6%**

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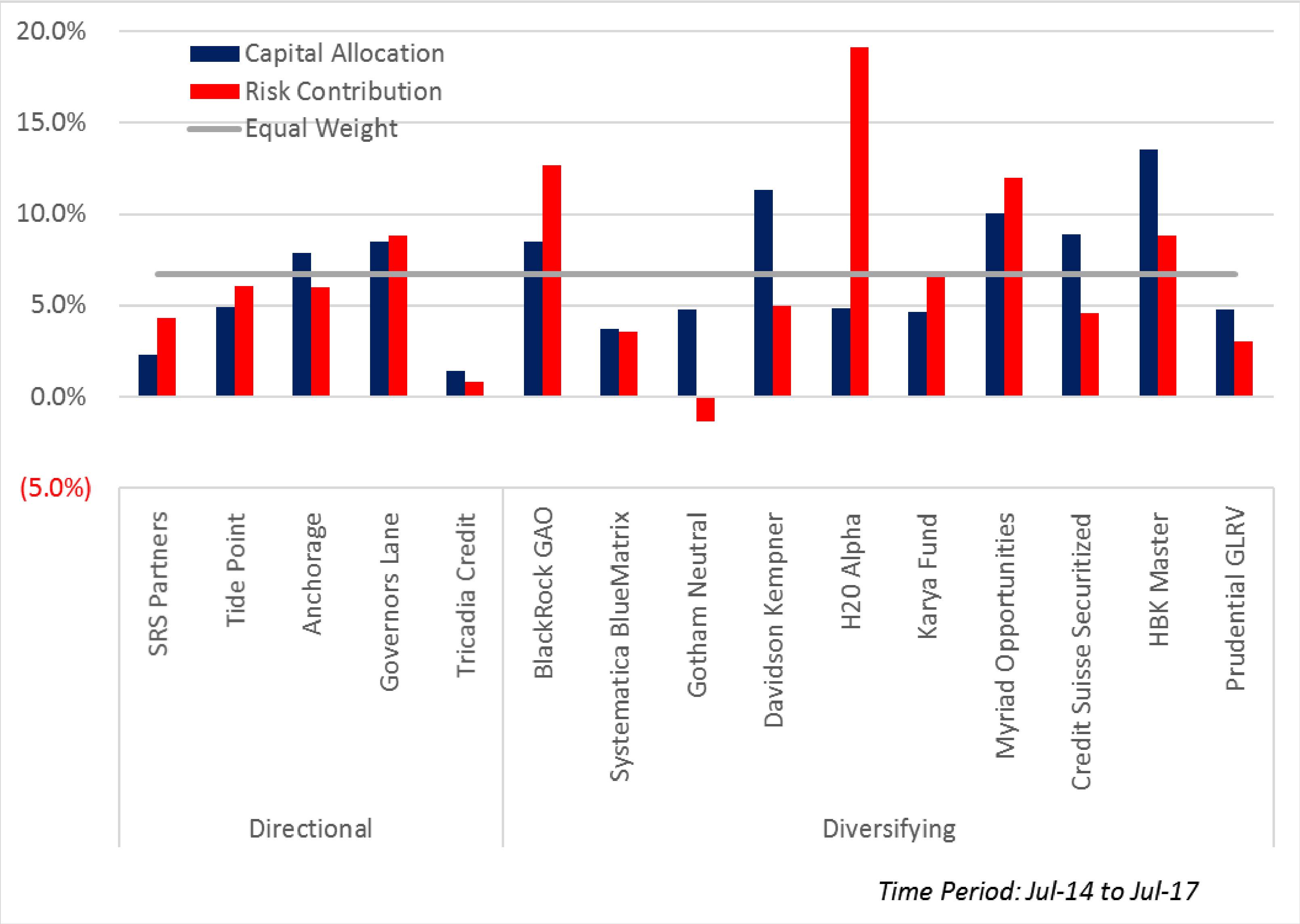
DIRECT PORTFOLIO CAPITAL Vs. RISK



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PERFORMANCE SUMMARY: DIRECT PORTFOLIO

Period Jan-08 to Jul-17		PERFORMANCE				RISK			ANNUAL PERFORMANCE			
Fund Name	Strategy	YTD	1 Year	3 Year	5 Year	S&P 500 Correl	S&P 500 Beta	Std Dev	2016	2015	2014	2008
S&P 500	SP500	11.60%	16.06%	10.9%	14.8%	1.00	1.00	15.4%	12.0%	1.4%	13.7%	(37.0%)
BAML ML 10+ Year US Treasury	Index	4.69%	(9.46%)	5.1%	2.0%	(0.29)	(0.23)	11.9%	1.2%	(1.0%)	24.4%	24.4%
HFRI - Diversifying Strategies- Fund Weighted	HFRI	1.16%	0.52%	2.5%	2.3%	0.29	0.06	3.2%	2.2%	0.6%	5.4%	2.7%
HFRI - Directional Strategies- Fund Weighted	HFRI	6.71%	10.94%	3.6%	6.6%	0.87	0.49	8.5%	7.3%	(2.1%)	2.0%	(27.5%)
HFRI Macro: Systematic Diversified Index	HFRI	(1.53%)	(7.50%)	1.7%	(0.1%)	(0.09)	(0.04)	7.5%	(1.4%)	(2.4%)	10.7%	18.1%
Barclays US High Yield Index	Index	6.10%	10.97%	5.3%	6.7%	0.72	0.51	10.8%	17.1%	(4.5%)	2.5%	(26.2%)
SRS Partners Master Fund LP	Directional	8.93%	17.03%	6.6%	12.0%	0.26	0.18	10.7%	(1.5%)	14.8%	14.9%	(1.0%)
Tide Point Capital	Directional	(10.34%)	(4.62%)	0.1%	7.6%	0.45	0.25	8.5%	16.2%	(2.4%)	18.1%	
Anchorage Capital Offshore, Ltd	Directional	2.75%	4.86%	2.5%	8.4%	0.50	0.21	6.4%	2.3%	1.3%	9.1%	(14.4%)
Governors Lane Fund	Directional	6.93%	12.39%			0.54	0.18	5.1%	10.5%			
Tricadia Credit Strategies Fund LP	Directional	4.08%	5.97%	0.5%	4.3%	0.46	0.16	5.4%	(1.5%)	(1.9%)	4.0%	2.6%
BlackRock GAO Fund Ltd.	Diversifying	2.68%	(3.96%)	3.9%	3.6%	0.40	0.18	6.9%	(10.5%)	18.8%	(1.6%)	
Systematica BlueMatrix Fund Limited	Diversifying	(0.61%)	3.78%	3.3%	5.0%	0.25	0.12	7.4%	(2.7%)	7.9%	10.4%	8.8%
Gotham Neutral Fund LP	Diversifying	(3.29%)	1.42%	0.5%	2.7%	0.23	0.08	5.3%	7.5%	(4.8%)	7.6%	
Davidson Kempner Institutional Partners, L.P.	Diversifying	4.15%	7.35%	3.6%	6.1%	0.62	0.16	3.9%	6.8%	1.6%	4.5%	(9.7%)
H20 Alpha Ten	Diversifying	4.84%	20.74%	8.3%	13.4%	0.15	0.11	12.0%	(2.3%)	18.3%	8.9%	
Karya Fund LLC	Diversifying	(1.47%)	(4.41%)	2.4%	7.3%	0.14	0.10	10.6%	3.8%	2.3%	10.9%	
Myriad Opportunities Fund	Diversifying	9.05%	12.40%	10.9%	12.2%	0.29	0.10	5.4%	3.9%	3.1%	20.5%	
Credit Suisse Securitized Products Fund	Diversifying	7.09%	10.22%	6.8%	10.8%	0.33	0.06	2.8%	4.7%	6.1%	10.7%	
HBK Master Fund	Diversifying	1.81%	4.40%	1.9%	4.1%	0.51	0.14	4.3%	8.2%	(2.6%)	3.2%	(16.2%)
Prudential Global Liquidity Relative Value	Diversifying	7.11%	12.08%	9.6%		0.60	0.12	3.2%	10.9%	9.9%		

Notes:

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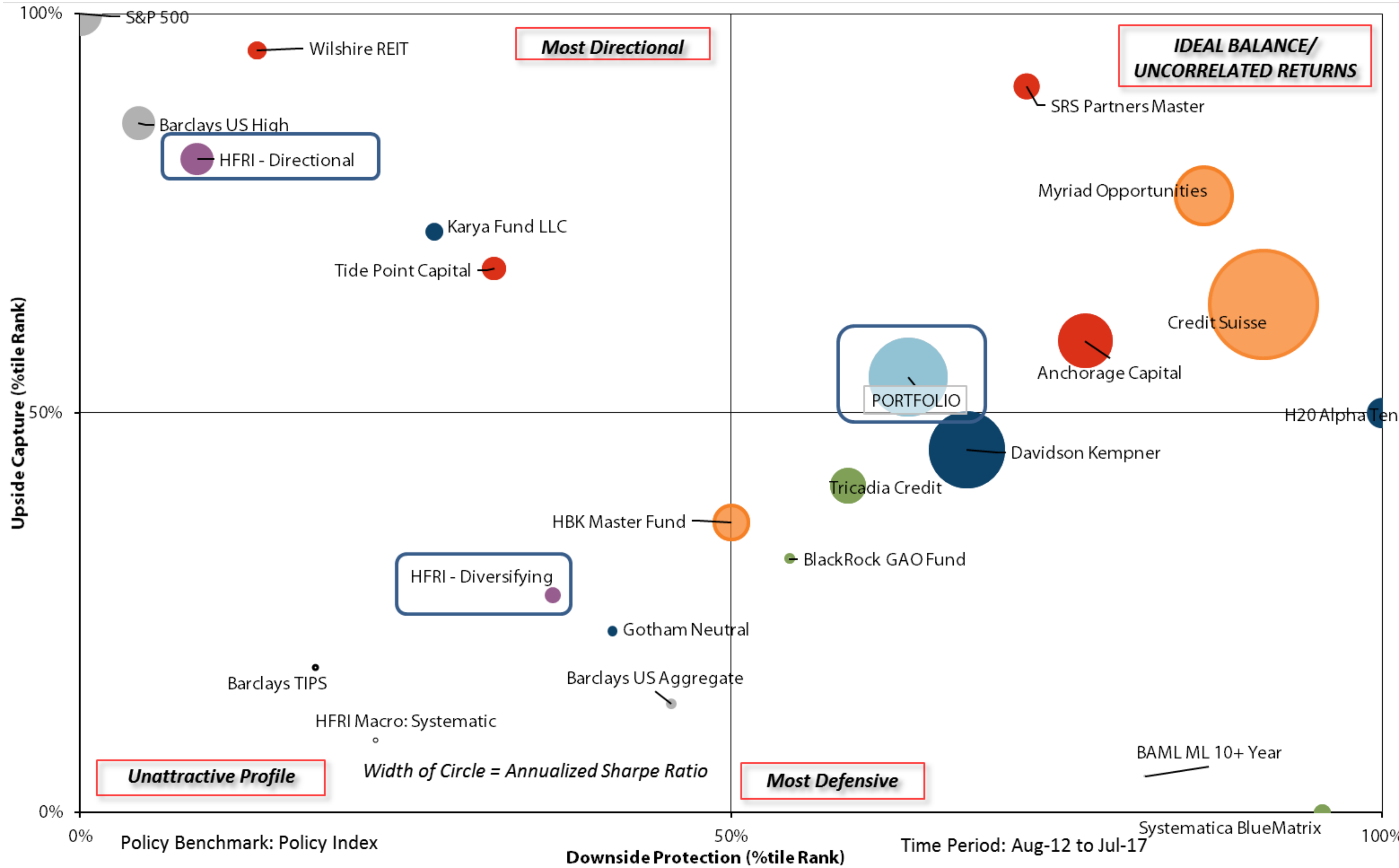
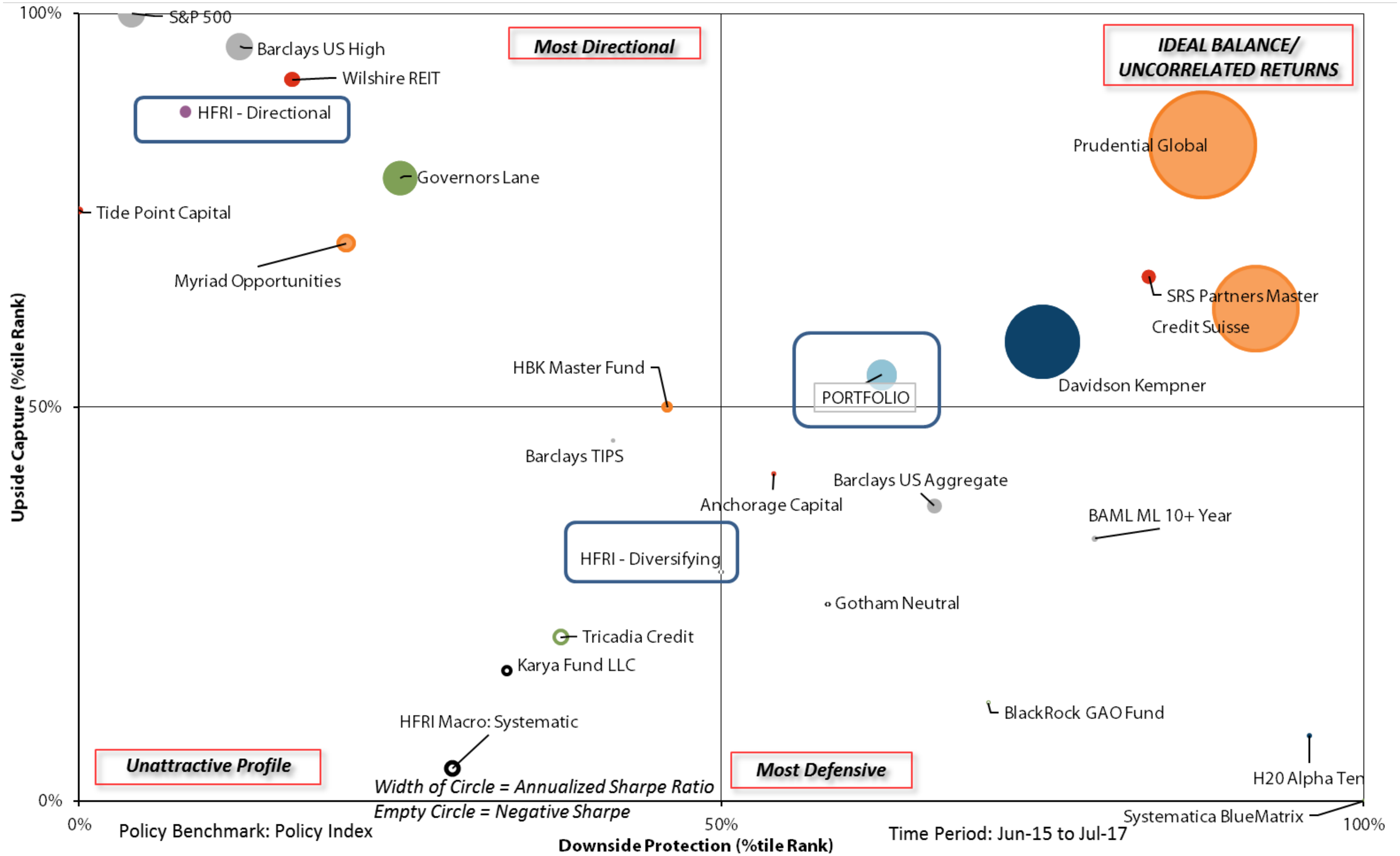
DIRECT: ROLE IN PORTFOLIO - Trailing 5 Years



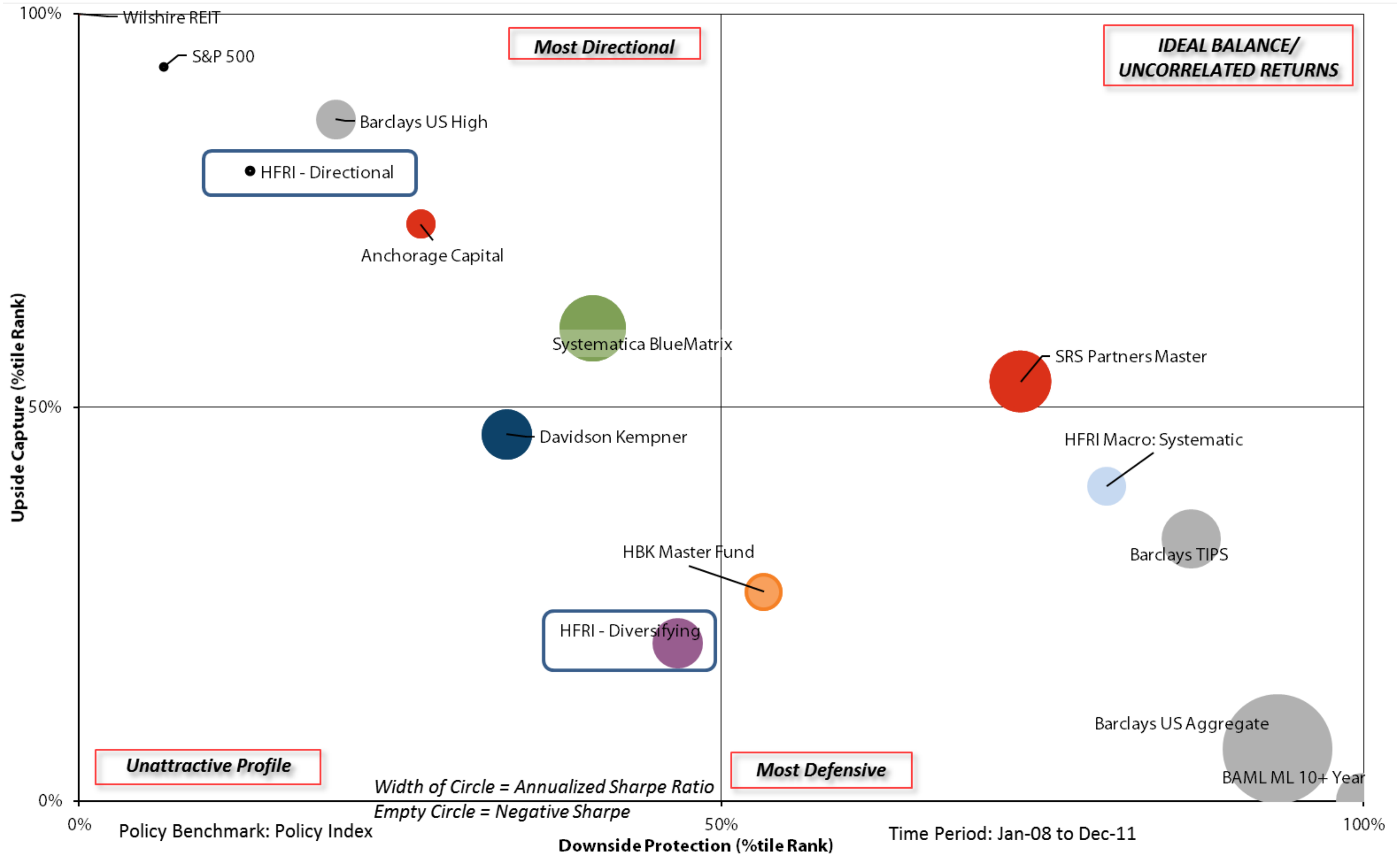
Notes: Excluded due to short track record: Governors Lane, Prudential GLRV

DIRECT: ROLE IN PORTFOLIO- All Managers



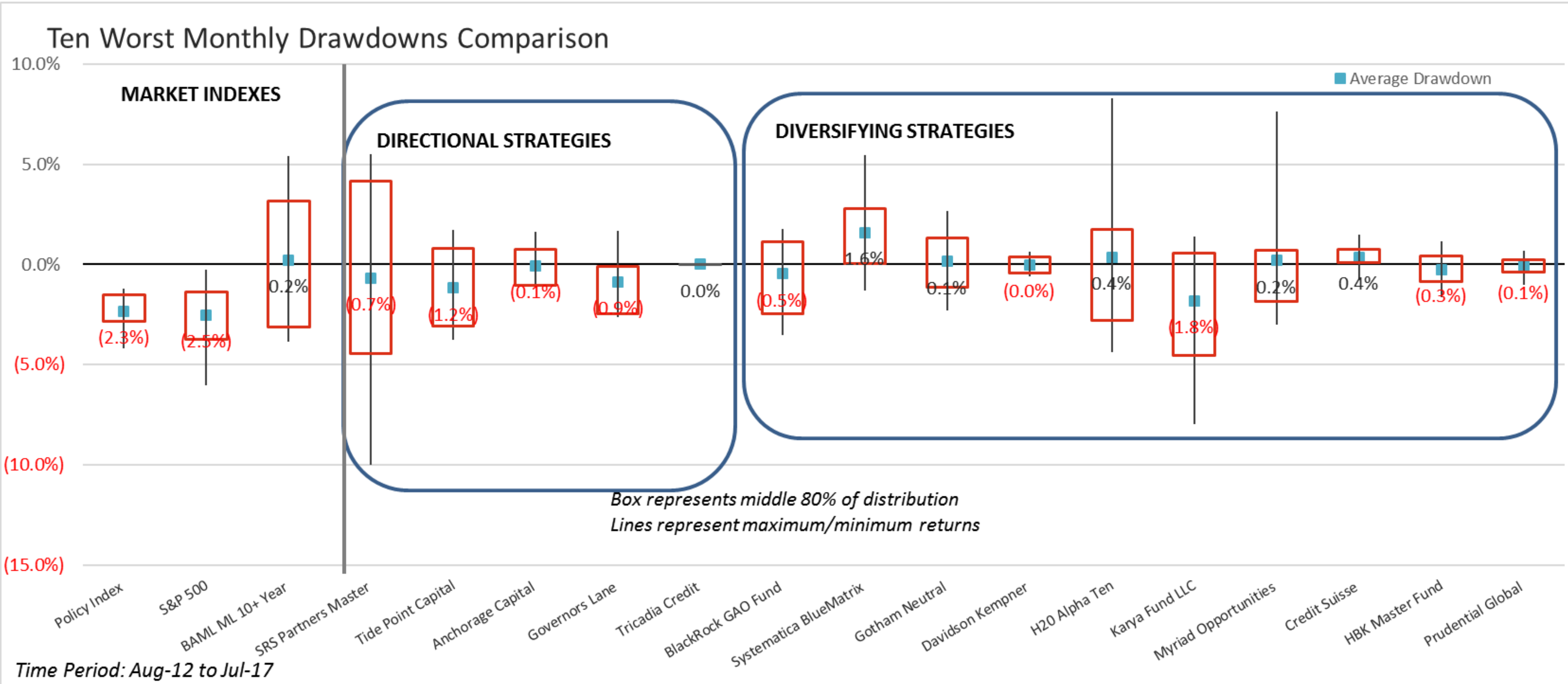
Notes: Governors Lane track record begins June 2015.

DIRECT: ROLE IN PORTFOLIO- Crisis



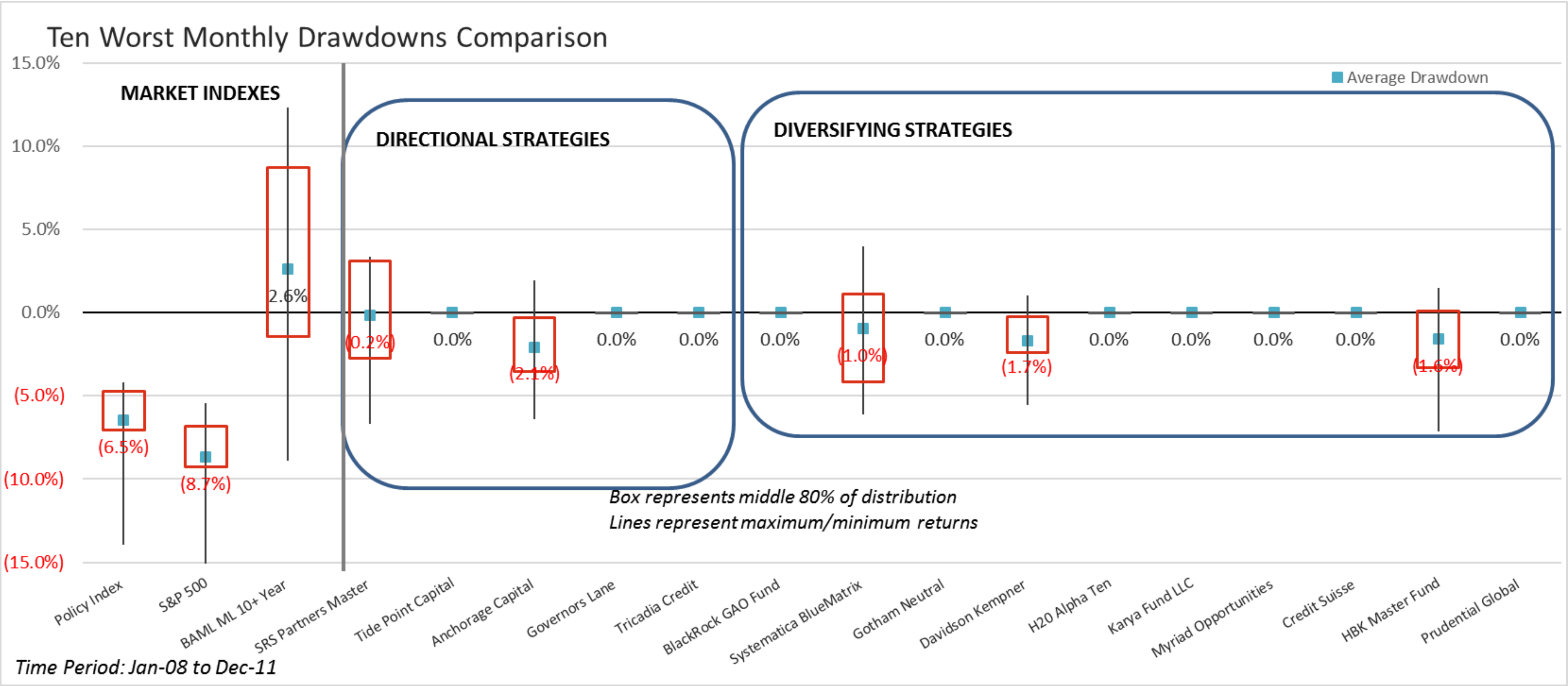
Notes: Only five of the 15 current direct exposures have track records through the crisis and recovery.

DOWNSIDE RISK – LAST FIVE YEARS



Notes: Only five of the 15 current direct exposures have track records through the crisis and recovery.

DOWNSIDE RISKS – CRISIS PERIOD



Notes: Only five of the 15 current direct exposures have track records through the crisis and recovery.

ASSET ALLOCATION

FUNDAMENTAL RISK BELIEFS

Wilshire Consulting has been a pioneer in objectively identifying and quantifying investment risks for more than four decades. Our experience has shown repeatedly that effectively managing risks and costs are critical factors in achieving long-term investment objectives.

Understanding Risk Drives our Investment Process

- **Risk should be compensated:** Risk and return go hand-in-hand, but not all risks are rewarded equally. Be extremely selective.
- **Downside and behavioral risks should be managed:** Investors are enamored with potential returns and often underestimate the associated risks. Drawdowns destroy long-term wealth potential. Actively manage risk exposures.
- **Market timing can be dangerous:** "Tactical" investments may create more risk than return...use tactical positioning only when the potential reward is compelling.
- **Costs matter:** In a world of uncertain outcomes, fees and expenses are risks that are known with near-perfect insight and are a hurdle between the portfolio and its objectives. Be an extremely disciplined buyer.
- **The illiquidity risk premium varies and, alone, may be insufficient to justify private investments:** Tailor alternative investment strategies to take advantage of specific markets or managers that offer unique opportunities.

THE WORLD THROUGH RISK LENSES

Wilshire Consulting views the world through six different risk lenses. Finding the optimal balance between mitigating certain risks while profiting from others is the key to long-term success.

Risk lenses help to focus the asset allocation process by providing context for modeling results and orienting decisions around organizational goals.

Drawdown: The potential for the portfolio to experience a significant decline in value.

Inflation: The potential for financial assets to lose purchasing power over time.

Liquidity: The potential for an investor to be unable to buy or sell specific assets in the portfolio.

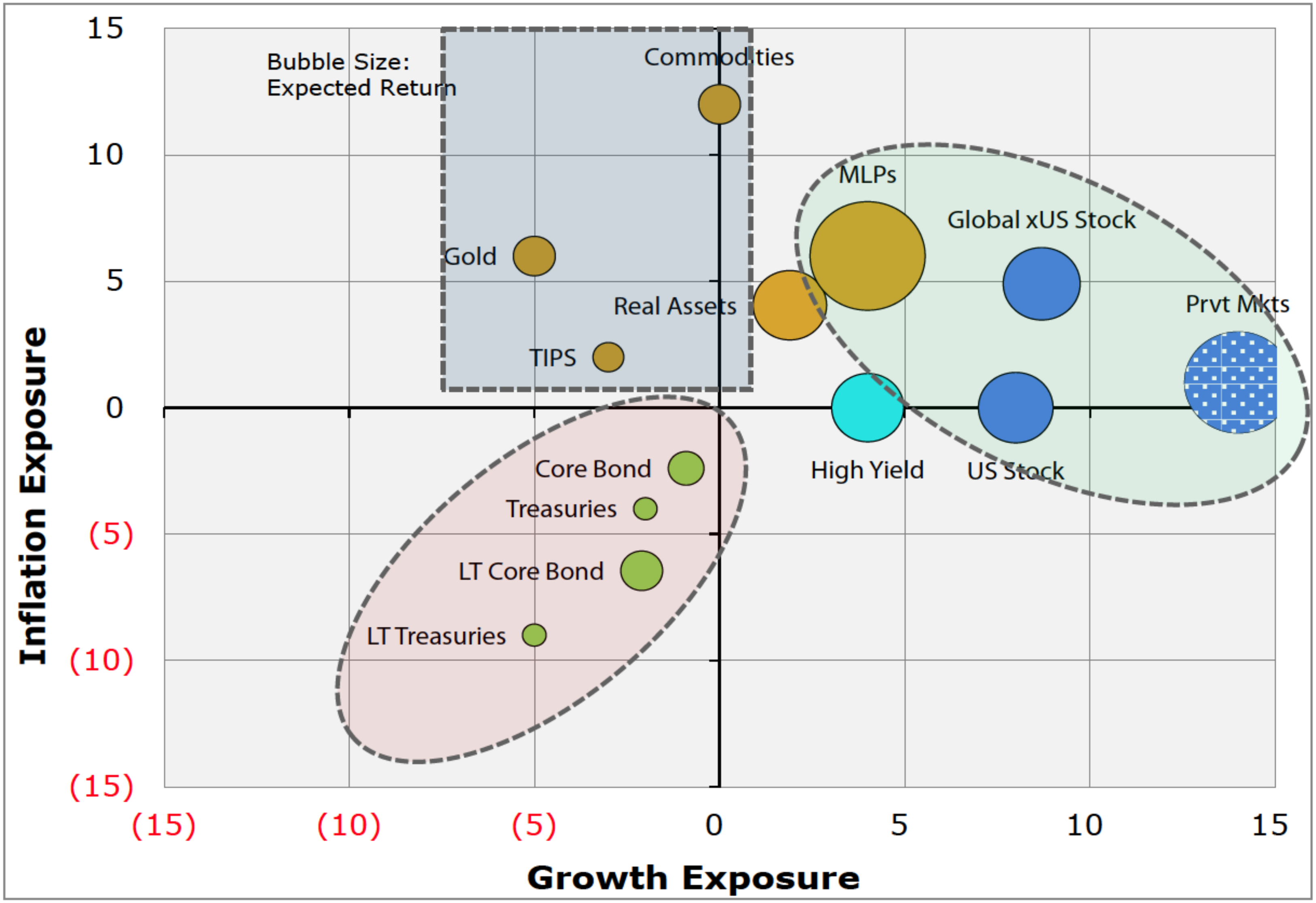
Active: The potential for an investment strategy to experience tracking error due to characteristics that differ from those of the market

Behavioral: The potential for biased decision making to impede the organization's ability to reach its investment goals

Shortfall: The potential for the portfolio to fail to reach the organization's objectives.

ECONOMIC FACTOR EXPOSURES

Concentrated factor tilts can represent portfolio vulnerability



WILSHIRE CONSULTING HEDGE FUND INVESTMENT PHILOSOPHY

- Hedge funds are an implementation tool used to achieve portfolio objectives.
- Hedge funds are not homogenous and have varying levels of directionality, risk and liquidity.
- Manager structuring and selection is highly dependent on investor objectives, risk tolerances, and governance capabilities.

Therefore…

- Instead of "hedge fund", lets talk in terms of marketable alternatives.
    - Benchmark agnostic strategies and/or funds with investment lives of < 5 years.
- Instead of building a diversified portfolio of hedge fund investments (typical mentality), let's invest in a diversified set of strategies to achieve one or more outcomes:
    - Drive returns (Growth)
    - Hedge downside risks (Diversifiers)
    - Protect against inflation (Real Assets)
- Focus on Downside Risks: A reminder from 2008 is that qualitative considerations and potential tail risks can be more important than volatility and historical correlation relationships.

STRUCTURING MARKETABLE ALTERNATIVES ROLE DRIVEN INVESTING

Wilshire Consulting recommends segregating the hedge fund universe of strategies into Directional and Diversifying sub-groups.

Directional Alternatives

- Strategies that tend to be directionally long risk assets and exhibit higher equity correlations, though many exhibit low beta
- Allocations factored into overall directional risk in portfolio
- Most Equity Hedge and Event Driven (Spec Sits & Distressed) with some Relative Value
- Trailing 5 year: Equity correlation of 0.87. Equity beta of 0.45.

Diversifying Alternatives

- Strategies that rely on arbitrage opportunities, dynamic directional exposures or specific market inefficiencies to generate returns. Generally low beta AND low equity correlations
- Designed to diversify versus Policy over most rolling periods > one year
- Strategies: All Global Macro, Equity Market Neutral, Merger Arbitrage, some Relative Value, some Credit, direct lending, opportunistic.
- Trailing 5 year: Equity correlation of 0.30. Equity beta of 0.05.

Wilshire

ASSET ALLOCATION

INTEGRATION APPROACH

GROWTH
Economic Growth

- Public Equity
- Private Equity
- Public Credit
- Private Credit
- Directional Hedge Funds

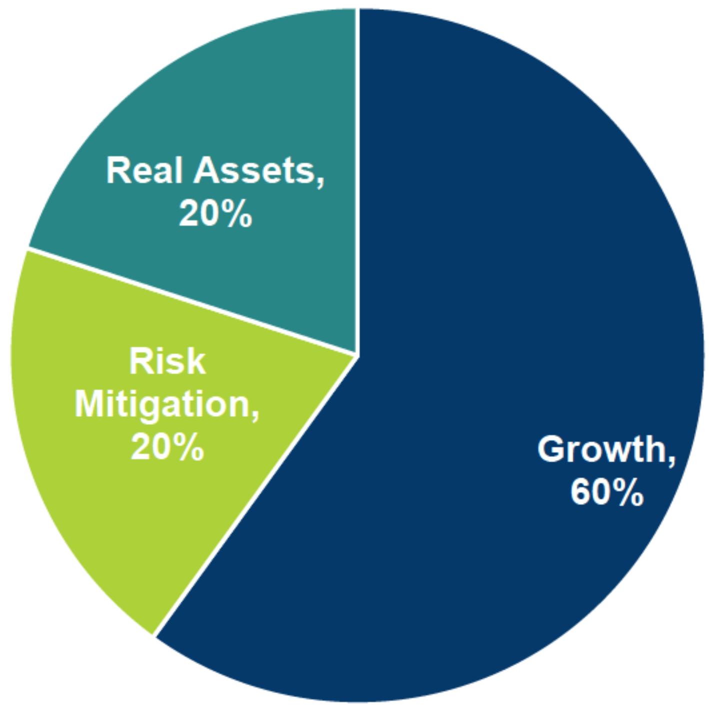
RISK MITIGATION
Safety and Liquidity

- Long Duration Fixed Income
- Core Fixed Income
- Cash
- Diversifying Hedge Funds

REAL ASSETS
Inflation Protection

- Global Inflation-Linked Bonds
- Commodities
- REITs, MLPs
- Global Listed Infrastructure
- Private Real Assets
- Real Asset Hedge Funds

Typical Capital Allocation

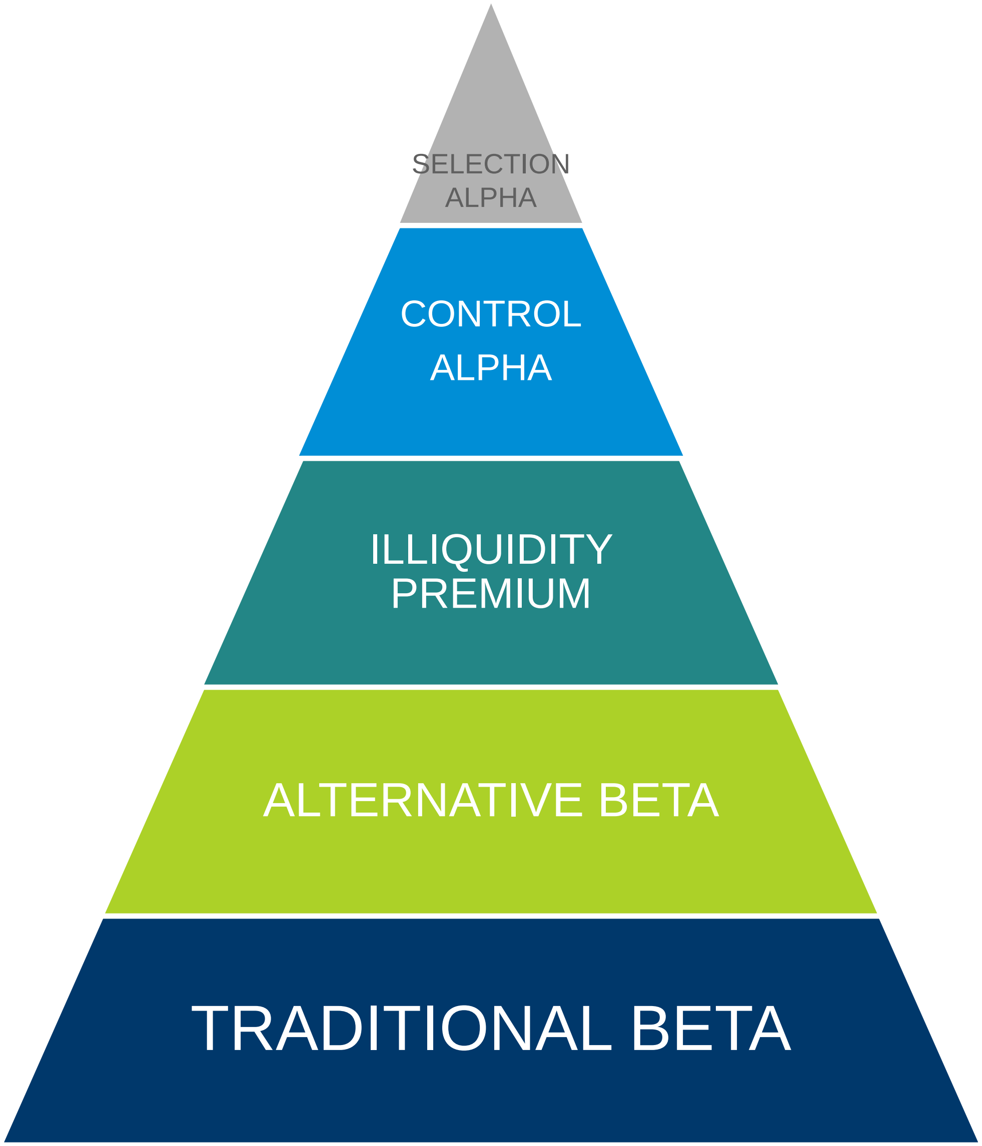


INVESTMENT BELIEFS

MARKET ALTERNATIVES BELIEFS

- Hedge funds are not an asset class. Return drivers & risk levels vary
- Every investment should have a role in the portfolio: drive returns, hedge inflation, hedge downside risks. Every investment should compete for capital on this basis
- Correlation matters at least as much as beta
- Diversifying investments need not be low volatility
- Managing to volatility levels is not enough: downside risks exacerbate behavioral risks and governance missteps
- Over-diversification is a common structuring mistake and increases risk of achieving mediocre index returns
- Most strategies have an identifiable beta or risk premia. Don’t overpay.
- Minimize fixed costs while being willing to pay for edge and upside
- Selection alpha is rare. Focus on structural inefficiencies, control strategies, unique markets/risks, and strategies with tail winds.

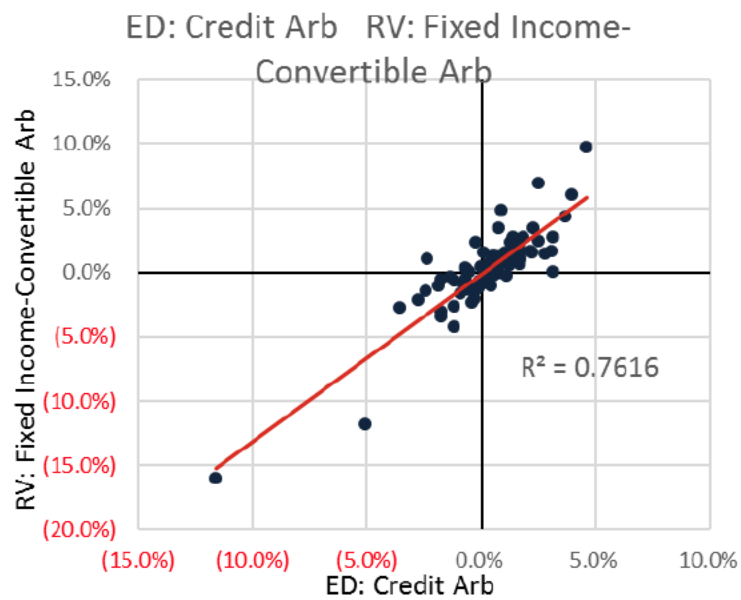
Defining Alpha and Beta Return Components

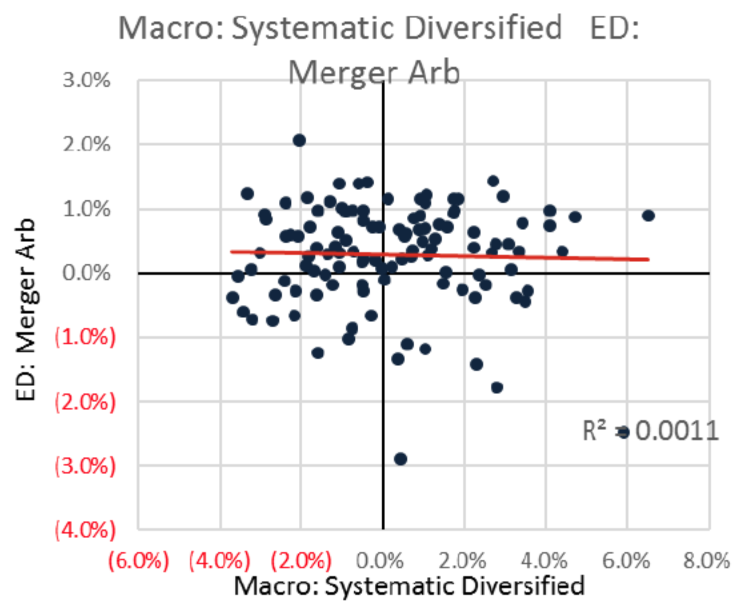


- **Selection Alpha** – Alpha derived from active security selection with measurable skill versus peers and passive options. Can come from multiple sources and extremely rare.
- **Control Alpha** – Alpha derived from a manager's direct involvement with an investment, e.g., Activist, Distressed for control.
- **Illiquidity Premium** – Premium derived from being a longer term capital provider, i.e., direct lending, whole loan purchases; can have a transitory & or opportunistic element, i.e., bank regulatory relief.
- **Alternative Beta** - Former Alpha strategies that have become more readily accessible due to research and creation of new investment vehicles.
- **Traditional Beta** - Returns derived from being a provider of capital via securities or owning hard assets.

Understanding What Drives Returns

- Diversifying across different hedge fund strategies doesn't always ensure actual diversification
- Hedge fund strategies classified differently often have similar returns drivers
  - The HFRI Event Driven Credit Arbitrage Index is 0.8 correlated to the Relative Value Convertible Arbitrage Index
- While many strategies have unique return drivers
  - The HFRI Macro Systematic Diversified Index is 0.03 correlated to the Event Driven Merger Arbitrage Index

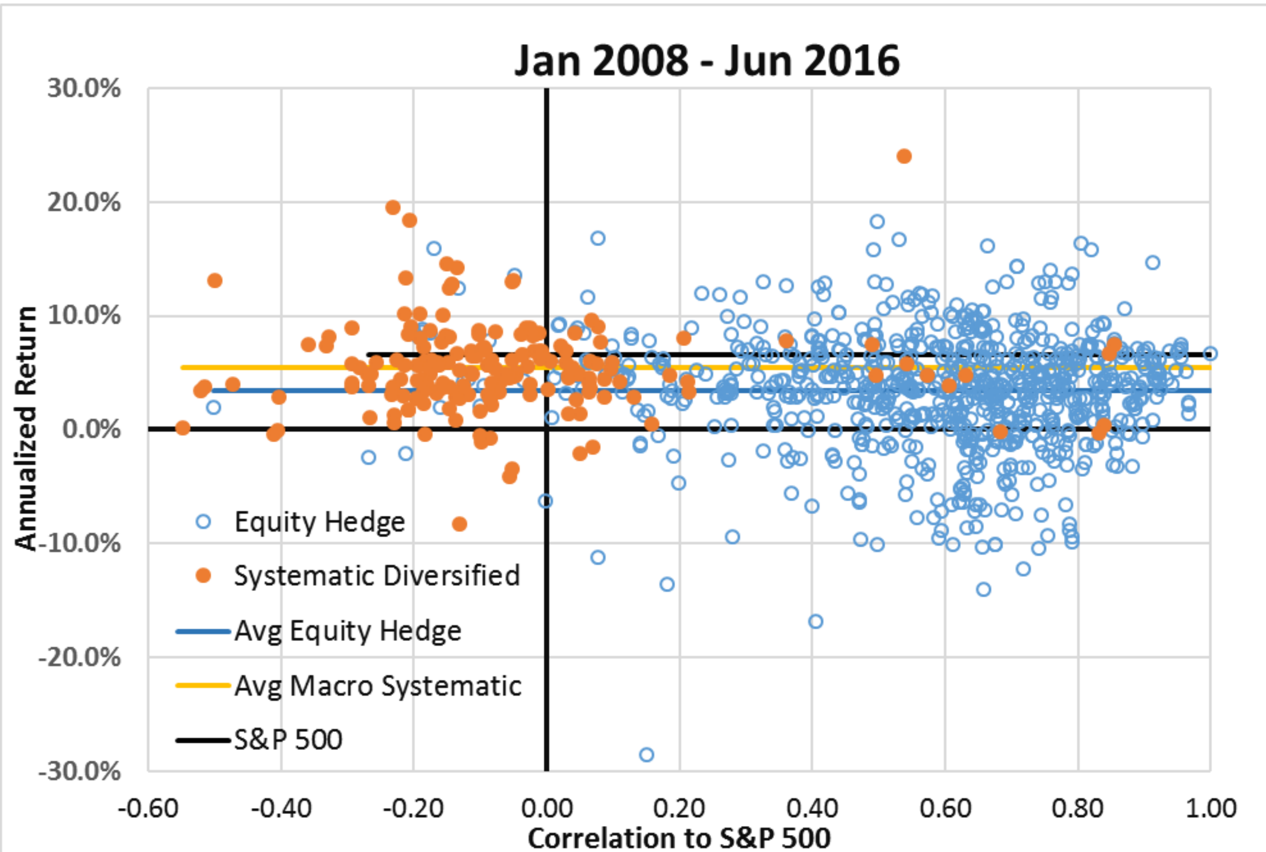




Diversifying Investments ≠Lower Returns

Modern portfolio theory says higher risk (i.e. equity risk) = higher return. The fine print: no leverage, no shorting, perfect information, etc. The reality is structural and behavioral inefficiencies create opportunities for unconstrained, opportunistic managers

Why does this matter? Equity risk doesn't have to be a key driver of returns. Regardless of if they meet or beat risk assets, diversifying investments give investors additional degrees of freedom to manage portfolios, i.e., providing liquidity to buy under-valued assets in 2008

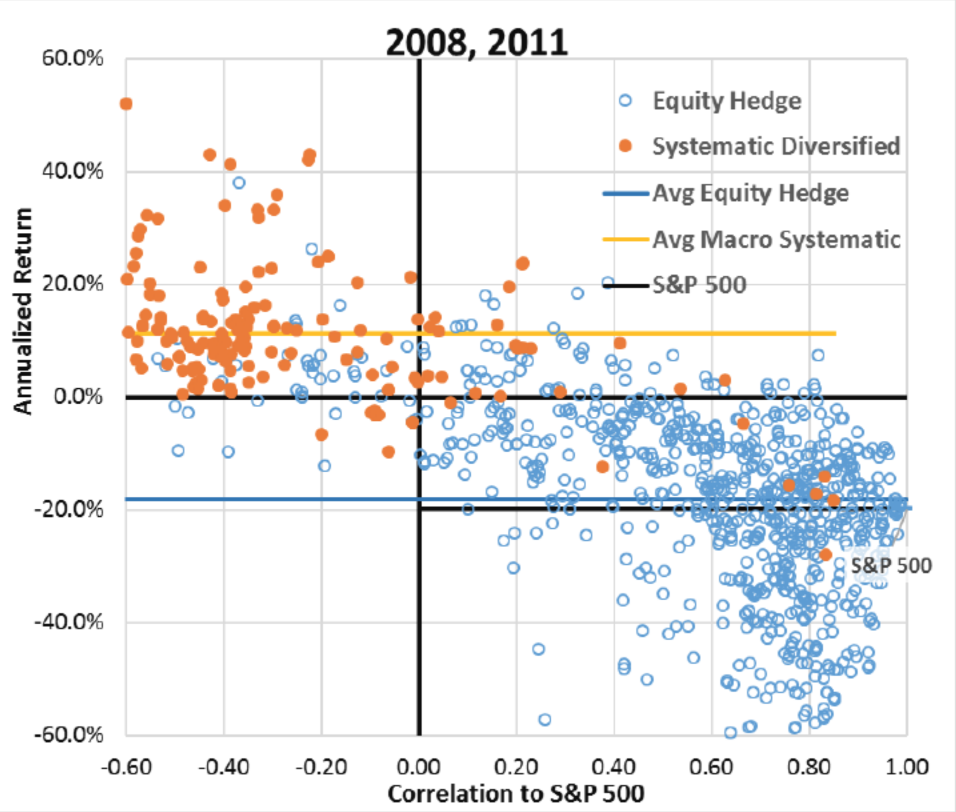


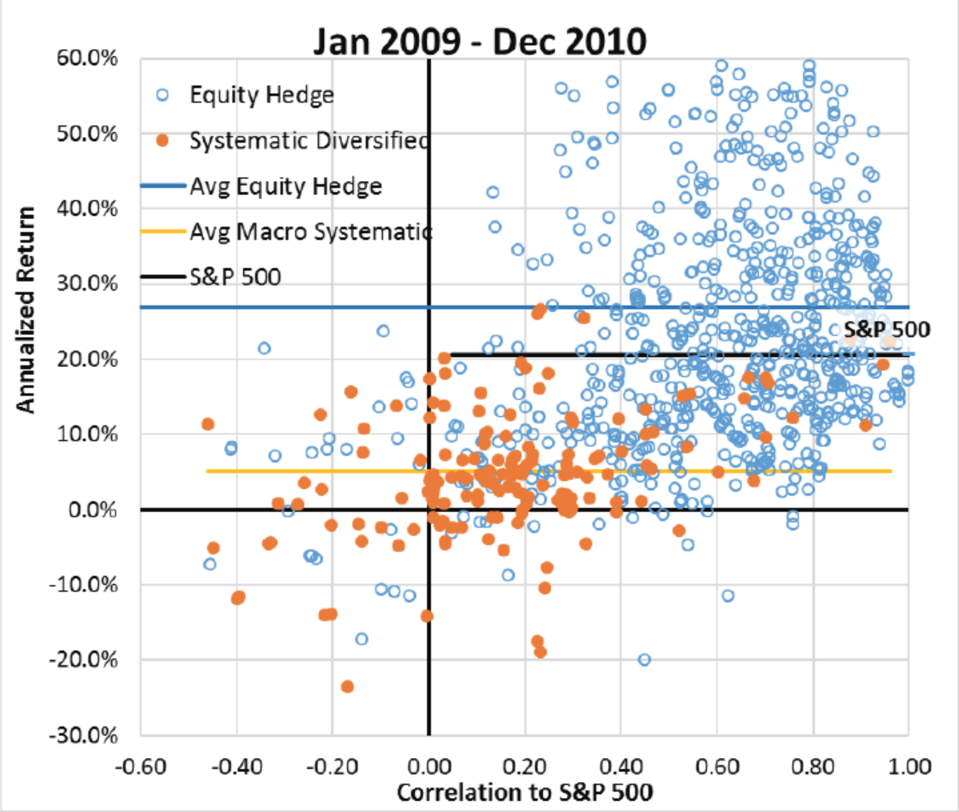
- 2008-2016, the average Equity Hedge manager has returned 3.4% while Systemic Macro managers averaged 5.4%
- Manager selection is critical: Equity Hedge managers exhibited higher dispersion than the Macro managers

Source: HFR and Wilshire. All manager/fund results normalized to the volatility of the S&P 500 for the period January 2008 to June 2016.

Diversifying Strategies: Path Dependency Matters

- More important is the path arriving at these returns…
- During 2008 and 2011, Systematic Macro managers were more likely to provide the positive returns to offset losses in the equity and credit markets while having the liquidity to support reallocating.
- The trade-off is that during the 2009-2010 bull market these strategies lagged significantly but still generated modestly positive returns on average.





Source: HFR and Wilshire. All manager/fund results normalized to the volatility of the S&P 500 for the period January 2008 to June 2016.

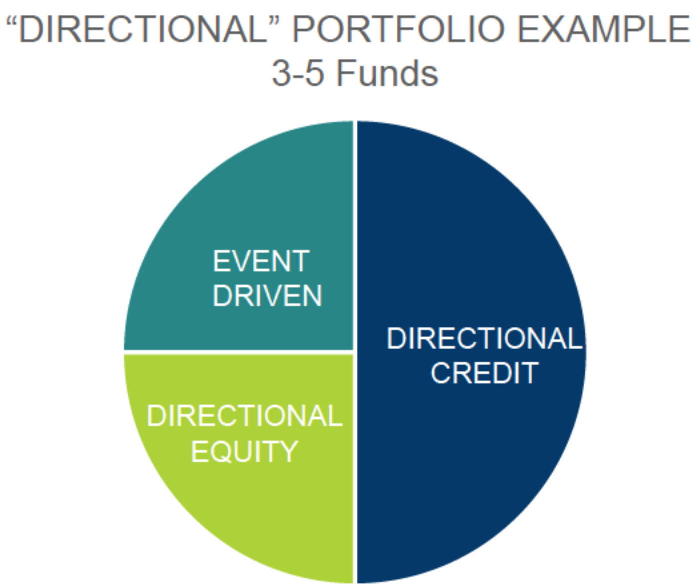
Market Outlook and Strategy Focus

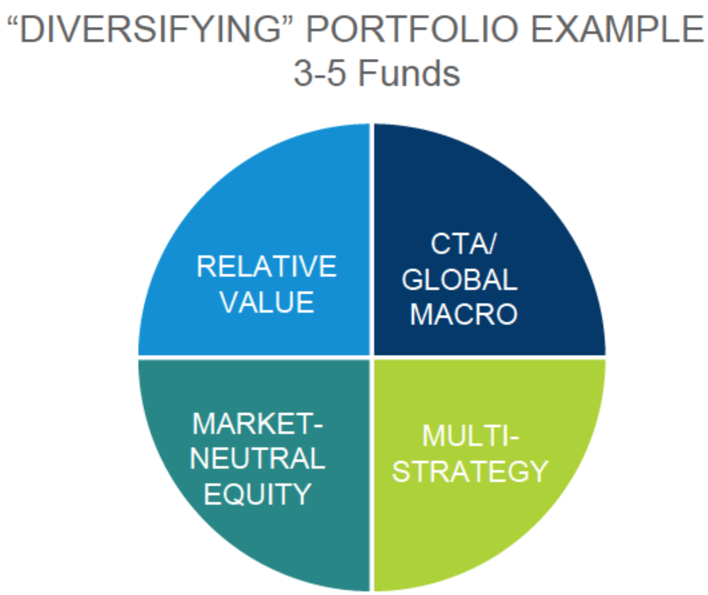
- **Tight credit spreads, relatively rich equity markets, and consistently low volatility levels point to a possible downturn in the current market cycle.**
- Wilshire currently favors true "***diversifying***" strategies or those less correlated to risk assets.
  - CTA Strategies
  - Market-Neutral Strategies
  - Multi-Strategy Funds
  - Relative Value Strategies
  - Structured Credit Strategies
- When considering "***growth"*** investments, Wilshire favors directional strategies that have some barriers to entry or have a control/catalyst element.
  - Activist Strategies
  - Private Credit Strategies
  - Sector-Specific Strategies
  - Small/Mid Cap Strategies
  - *Migration away from large cap, long-biased equity and high yield strategies*

INVESTMENT STRUCTURING

Wilshire Hedge Fund Advisory

SAMPLE HEDGE FUND PORTFOLIO





When considering *"directional"* hedge funds, Wilshire favors investment strategies that have barriers to entry or a control/catalyst element.

EXPECTED STRATEGY CHARACTERISTICS

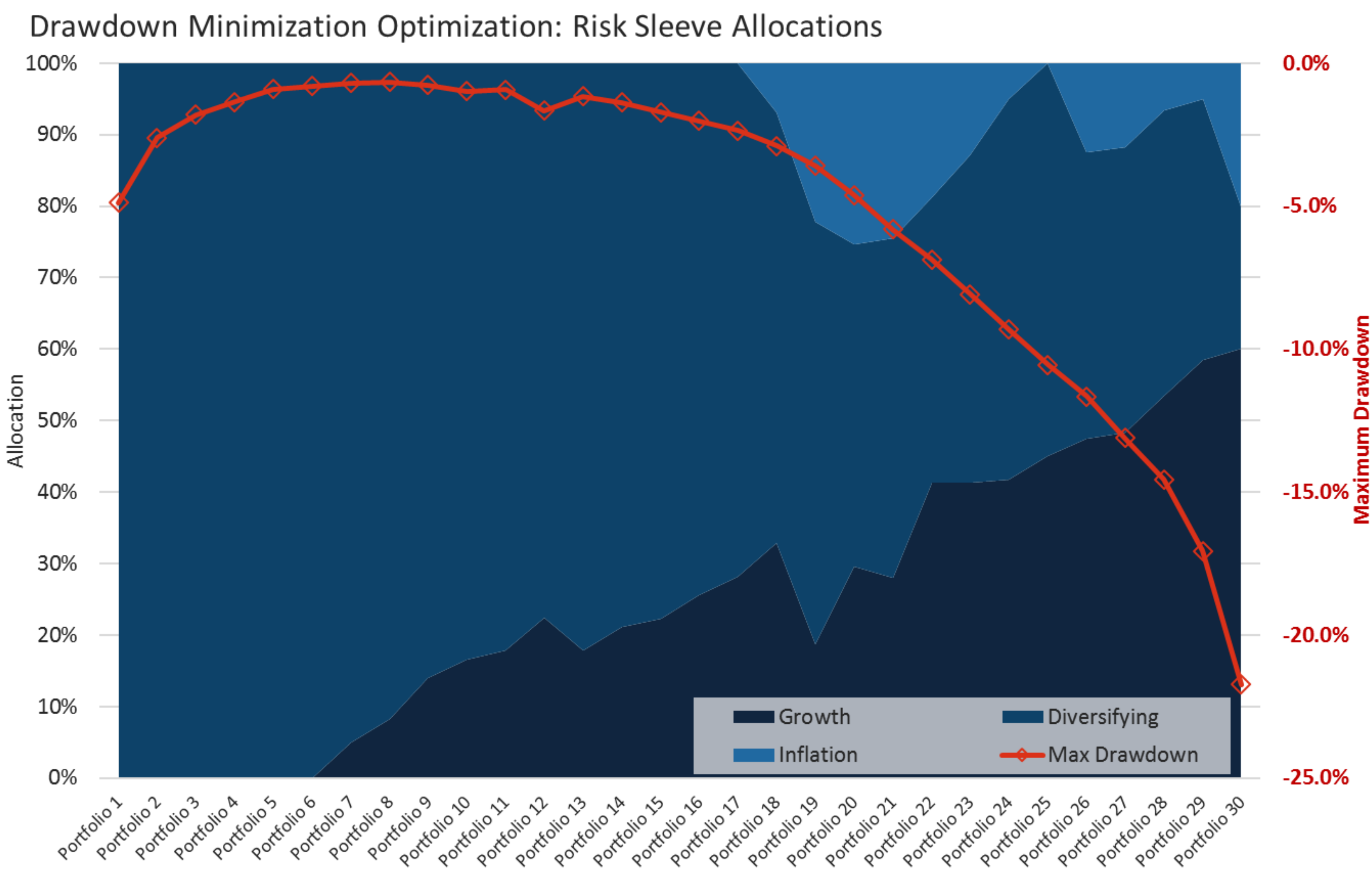
	DIRECTIONAL STRATEGIES	DIVERSIFYING STRATEGIES
Return	6.34%	5.03%
Risk	8.31%	4.45%
Beta (S&P 500 Index)	0.4-0.5	0.0-0.1
Correlation (S&P 500 Index)	0.72	0.54

STRUCTURING –SAMPLE IMPLEMENTATION

	Role	Market Sensitivity	Liquidity	Expected Return	Expected Volatility	Allocation
Directional Strategies	Return Driver	High	Quarterly, lock up	> 8%	8% to 12%	10%, 3-5 managers
Diversifying Strategies	Diversification / Liquidity	Low / Medium	Monthly, no lock ups	6% to 12%	5% to 10%	15%, 3-5 managers
Opportunistic Credit	Return Driver / Niche Investment	Varies	Annual, lock up, Drawdown	> 10%	< 8%	0-5%, TBD

- Goal: Rationalize manager line-up while improving strategy & manager diversification
- Approach: Barbell hedge fund portfolio: go more directional in the Growth portfolio and add liquid, less correlated managers to the Diversifying portfolio
- Opportunistic: Placeholder for investments like Angelo Gordon Energy Credit Opps

Optimizing Hedge Fund Risk Allocations



Source: HFR, WIlshire. Optimization across 27 HFRI Sub-Strategy Indexes, January 2008 to June 2017

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KENTUCKY RETIREMENT SYSTEMS

INVESTMENTS

To: Investment Committee – Kentucky Retirement Systems

From: Anthony Chiu, Investment Officer

Date: February 6, 2018

Subject: Investment Recommendation – Strategic Value Special Situations Fund IV

KRS staff and Wilshire are proposing a commitment to Strategic Value Situations Fund IV, a $2.5 billion distressed debt fund that invests in North America and Europe. The Strategic Value Partners (SVP) team has produced attractive, consistent returns over its first three drawdown funds which date back to 2008. SVP has an operationally intensive investment process that focuses on 30-40 companies that they can influence over a multi-year holding period [redacted] and initial visibility into what will be a concentrated portfolio are also favorable. Our recommendation is timely as the fund is planning to have its final close in April and is likely to be oversubscribed.

Business / People:

SVP was formed in 2001 by Victor Khosla in Greenwich, CT and makes distressed and restructuring investments through a hedge fund vehicle (~$2 billion of assets) and drawdown funds (~$5 billion of assets). The firm has 103 employees, 39 of which are investment professionals. Khosla owns 100% of the firm, but has allocated more carried interest in Fund IV to key members of the Deal Underwriting, Deal Operating, and Global Sourcing teams.

Investment Process and Portfolio:

[redacted]

[redacted]

Performance:

Fund	Vintage	Size ($MM)	Gross IRR	Gross Multiple	Net IRR	Net Multiple
SVSS I	2008	$346	18.9%	2.3x	16.3%	2.0x
SVSS II	2010	$918	18.7%	2.0x	15.5%	1.8x
SVSS III	2013	$1,310	19.2%	1.5x	14.6%	1.4x

Source: SVP as of 9/30/17

Conclusion: Staff is recommending an investment of $65 to $70 million (depending on allocation) in Strategic Value Special Situations Fund IV to be shared between the following plans: KERSH, CERS, CERSH, and all 5 Insurance plans. Because of the illiquid nature of this opportunity, we do not recommend it for the KERS or SPRS pension plans.

<u>Investment and Terms Summary</u>

[redacted]

[redacted]	[redacted]
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SVPGLOBAL

EXPERIENCE • INSIGHT • VALUE

3rd Quarter 2017

Prepared for

Kentucky Retirement Systems

Special Situations Funds

STRATEGIC VALUE PARTNERS, LLC

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For Endnote and Source references please refer to the end of this presentation. Please also see "General Disclosure Notes" for a complete understanding of this presentation.

Strategic Value Partners – The Firm

Focused on restructurings, event-driven deals, special situations and trading-oriented opportunities

Established Presence

- Firm was founded in 2001 by Victor Khosla. $7.1bn in AUM

Global Operations

- 102-person team – 38 investment professionals, with offices in US, Europe and Japan

Distressed Focus

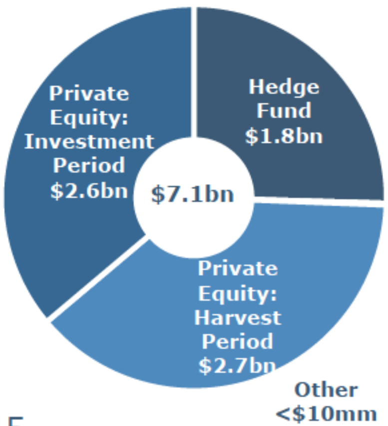
- Restructurings, event-driven deals, special situations and trading-oriented opportunities
- Full skill set: sourcing, financial restructuring and operational

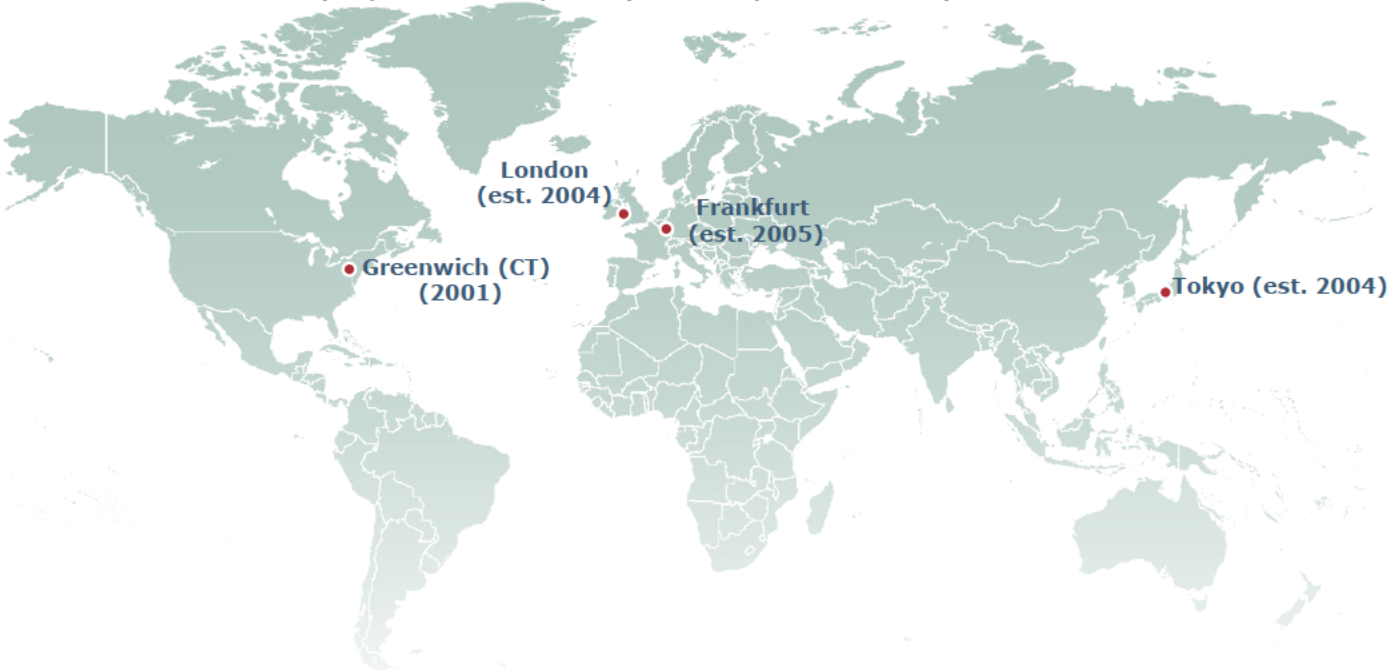
European Pioneer

- One of the earlier entrants in the European market with offices in London (2004) and Frankfurt (2005)
- Awarded Best Distressed Loan Investor 3 years in a row (2014, 2015 and 2016) by GlobalCapital (formerly EuroWeek)

Firm AUM

As of Jan 1, 2018





Strategic Value Partners – The Team

Investment team has grown from 34→38 in 2017. Most notable: steady leadership, rise of the next generation

Sourcing 8	Deal Analysis & Financial Restructuring 24	Operating Professionals 3
Kevin Lydon, 47 Greg Braylovskiy, 38 Hannah Cusworth, 35	**Victor Khosla, CIO**, 59 **US** **David Geenberg**, 34 **Daniel Han**, 39 Michael Schwartz, 39 **EU** **John Brantl**, 34 **HJ Woltery**, 52 Florian Kawohl, 45 Bryan Kelly, 42	**Jason Clarke**, 47 Anthony O'Carroll, 43 Christoph Majeske, 38 + 7 Chairmen of Portfolio Companies

Risk Management — Jon Kinderlerer, 44 — **3**

Total Investment Team 38

Firm Infrastructure
Fund Accounting, Operations, Legal, Business Development

Michael Hewett, 48

Edward Kelly, COO, 49
David Charnin, GC & CCO, 43
Jim Dougherty, CFO, 41

64

Advisory Council

Flip Huffard (US)
Goran Puljic (US)

José Barreiro (EU)
Sir David Cooksey (EU)

Dr. Bernd Farholz (EU)
Ian Guthrie (EU)
David Weaver (EU)

7

102 Professionals + 7 Advisory Council

Special Situations Funds – Overview

- **Special Situations Funds are following the same investment strategy**
  - Target Senior Debt as entry point to manage risk
  - Focus on distressed and deep-value opportunities in less competitive middle market companies in the US and Europe
  - Concentrate on opportunities where SVP can attain a leadership role including control
- [redacted]
- [redacted]
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presentation

Firm Overview & Special Situations Funds Update

- **The Opportunity Today**

SVP Sourcing & Operational Framework

Special Situations Funds Highlights

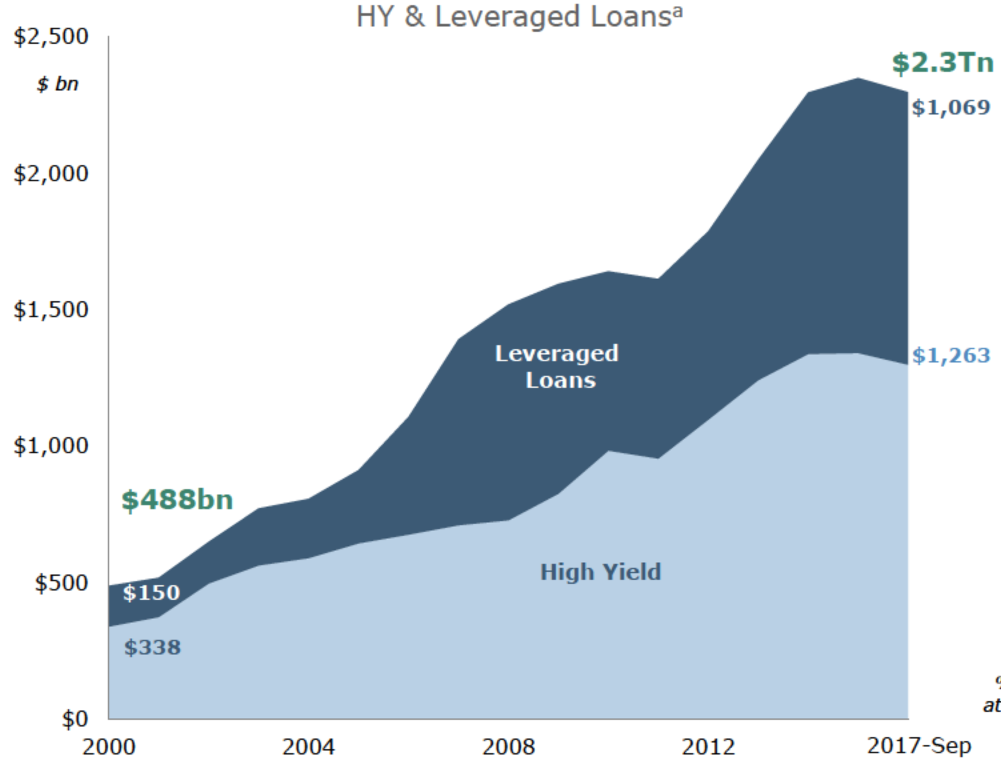
SVSS IV: Summary of Terms

Appendices: Select Biographies; Detailed Fund Performance

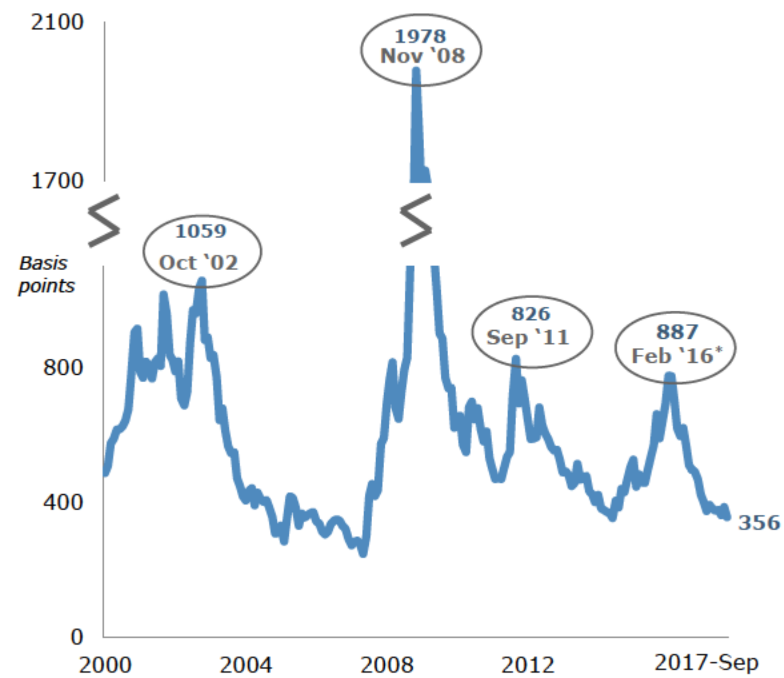
Distressed Debt – United States

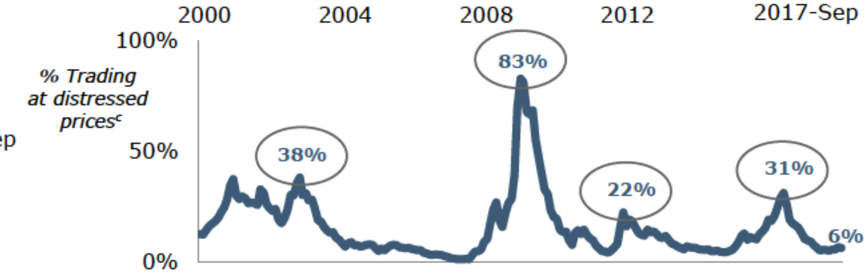
US – large, growing, boom & bust

US Market Size



US High Yield Spreads[b]

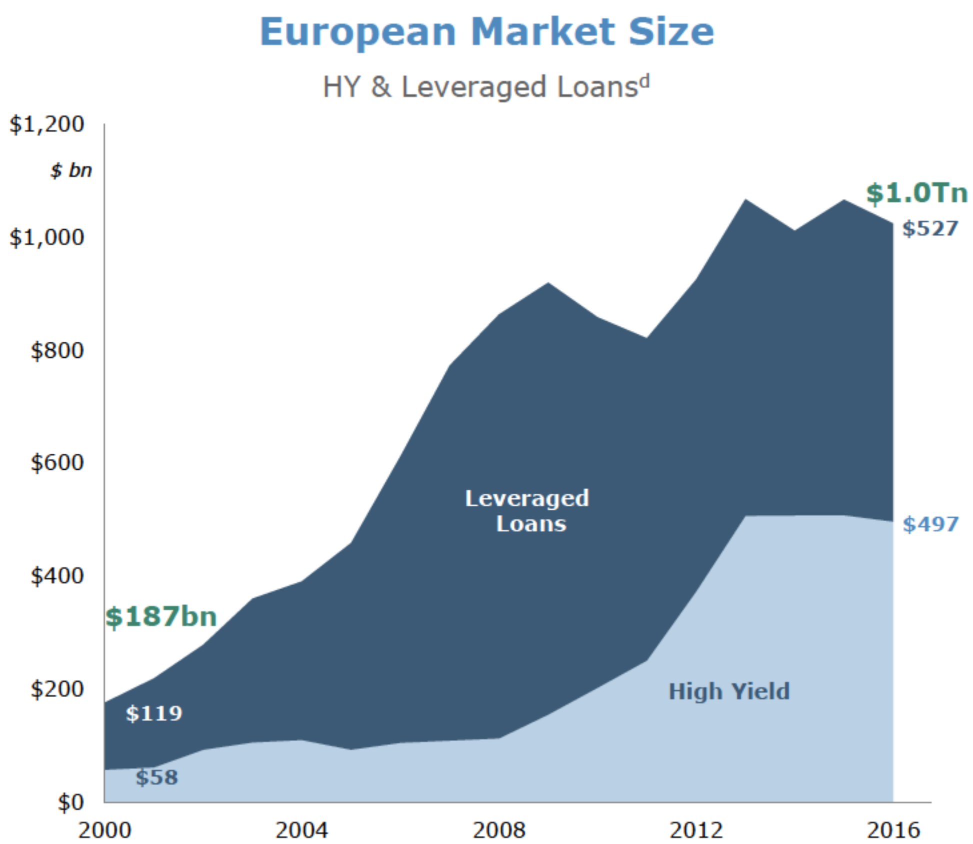


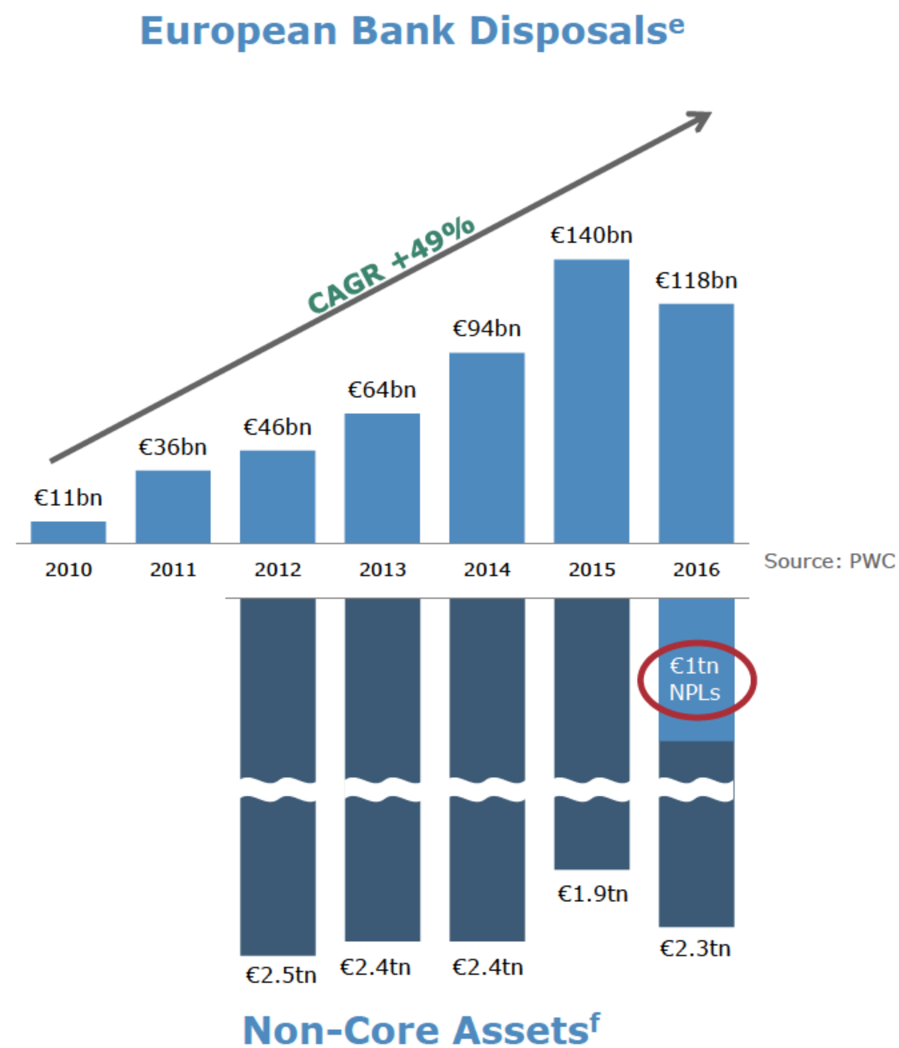


*Represents the peak spread level for the ML US HY Index in 2016 based on daily spreads

Distressed Debt – Europe

Europe – now also large, growing fast, with high level of sales activity by banks





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US HY Spreads

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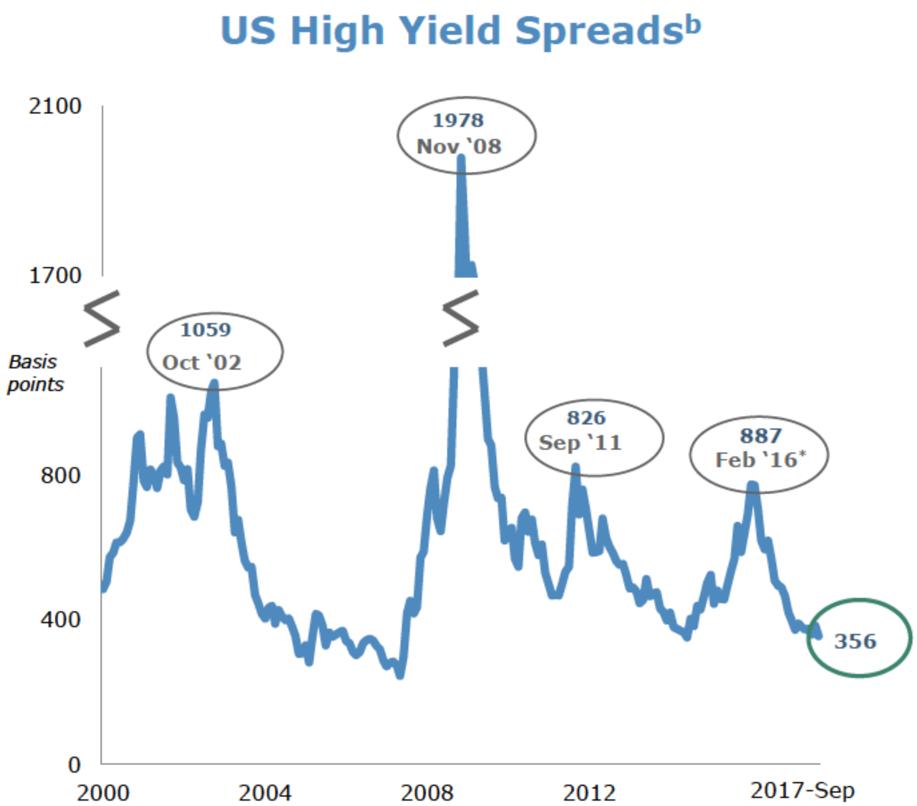
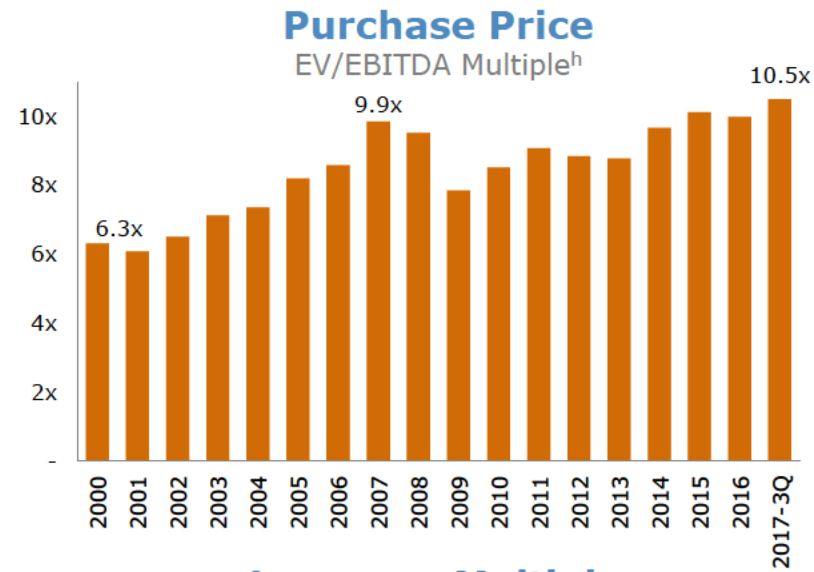
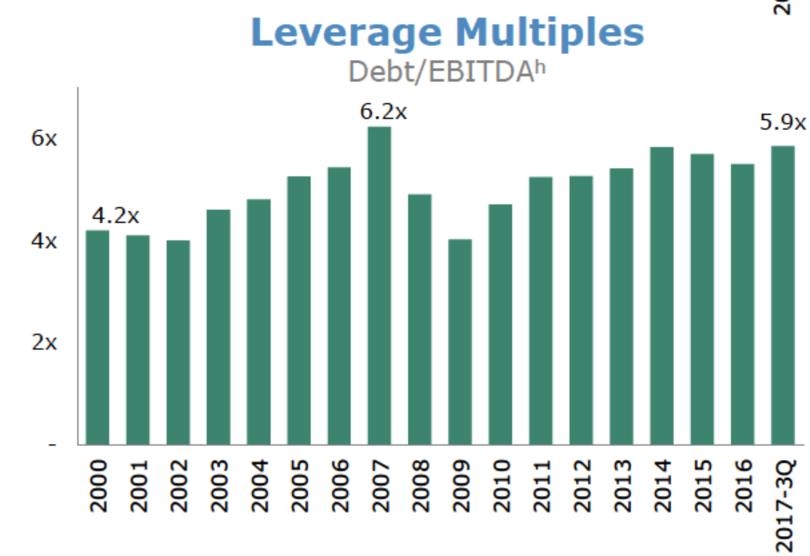
Distressed Debt – Current Market Conditions

What's next? The markets are building a good head of steam…







While we are not big market timers, we know that the opportunity set is going to improve substantially over next few years

*Represents the peak spread level for the ML US HY Index in 2016 based on daily spreads

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Firm Overview & Special Situations Funds Update

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SVSS IV: Summary of Terms

Appendices: Select Biographies; Detailed Fund Performance

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Firm Overview & Special Situations Funds Update

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Special Situations Funds Highlights

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Appendices: Select Biographies; Detailed Fund Performance

[redacted]

Senior Investment Team

Victor Khosla
CIO, Founder & Senior Managing Director

Mr. Khosla, 59, established SVP in 2001, and has built it into one of the major firms in distressed debt and private equity investments with $7.1 billion in assets under management. Mr. Khosla has 28 years in the industry. He got his start at Citibank (1989-1993) and subsequently built and managed the distressed proprietary trading business at Merrill Lynch (1993-1998). At the time of his departure from Merrill Lynch, Mr. Khosla had investment authority for $2 billion in corporate and real estate investments and headed a team of 40 analysts and traders based in New York, Tokyo, London and Hong Kong. After leaving Merrill Lynch, Mr. Khosla had leadership roles at two well-known funds; he was President of Cerberus Capital (1998-1999) and ran MooreSVP (1999-2002), a JV with Moore Capital, which invested in distressed debt in Japan. Mr. Khosla graduated with a first class Bachelors of Commerce (Honors) degree from Delhi University, a MA in Economics from Vanderbilt University, as well as a MBA from the University of Chicago. He is a member of the Management Council at the University of Chicago Booth School of Business.

Kevin Lydon
Managing Director

Mr. Lydon, 47, is Global Head of Sourcing for the Firm. From 2005 to 2007, Mr. Lydon was a Managing Director and Co-Head of European and Asian Special Situations in London at Credit Suisse. From 1997 to 2005, Mr. Lydon was at Merrill Lynch, most recently serving as a Managing Director and Co-Head of European Leveraged Finance Trading in London, and previously in New York, where he managed a book of distressed loans. Prior to that, Mr. Lydon worked as an Analyst at Fitch Investment Services in New York from 1993 to 1997. Mr. Lydon received a BA in Economics from Washington and Lee University in 1992 and an MBA in Finance from New York University in 2000.

David Geenberg
Managing Director

Mr. Geenberg, 34, is Co-Head of the North American investment team. Since joining SVP in 2009, Mr. Geenberg has led the firm's investment efforts in the infrastructure, energy, and power sectors in North America and has served on the steering committees of over a dozen significant restructurings. Previously, Mr. Geenberg worked at Goldman, Sachs & Co., most recently in the Infrastructure Investment Group and Principal Investment Area focused on energy and transportation infrastructure businesses, and, prior to that, in the investment bank's Natural Resources Group. Mr. Geenberg received a BA in Economics summa cum laude from Dartmouth College in 2005. Mr. Geenberg is on the Board of Directors of SilverBow Resources (formerly Swift Energy) and previously served on the Boards of Directors of Bicent Power and White Energy.

Daniel Han
Managing Director

Mr. Han, 39, is Co-Head of the North American investment team. From 2002 to 2014, Mr. Han was with Wellspring Capital Management, most recently as a Principal and one of four deal team leaders where he led transactional execution and portfolio company management. Mr. Han was a member of Wellspring's Investment Committee and a member of the Board of Directors of investments since 2006. From 2000 to 2002, Mr. Han was an Investment Banking Analyst in the Mergers and Acquisitions Group at J.P. Morgan. Mr. Han received a BS from the University of Virginia McIntire School of Commerce with a concentration in Finance in 2000. Mr. Han is on the Board of Directors at SH-130, Wastequip and Orleans Homebuilders, and was formerly on the Board of Directors at Aromair (formerly the US division of Jeyes) and GSE Environmental.

Senior Investment Team

John Brantl
Managing Director

John Brantl, 34, is Co-Head of the European investment team. He joined SVP in 2006 and has been based in London since 2012. Prior to joining SVP, Mr. Brantl worked in investment banking in Goldman, Sachs & Co.'s Financial Institutions Group. Mr. Brantl received an AB in Economics from Princeton University in 2005. Mr. Brantl serves on the Boards of Directors of a number of portfolio companies, including Cory Riverside Energy, APCOA PARKING, Genco Shipping and Trading, and Hibu Group.

Jason Clarke
Managing Director

Mr. Clarke, 47, is Co-Head of the European investment team having joined SVP at the opening of the European office in 2004. From 1999 to 2004, Mr. Clarke was an Assistant Director at Close Brothers, a UK advisory firm where he led numerous European transactions in the Corporate Restructuring Group. Prior to that, Mr. Clarke was as an accountant (ACA) with Arthur Andersen in the corporate tax department from 1995 to 1999. Mr. Clarke received a BA in Mathematics from the University of Oxford in 1991, and MSc in Pure Mathematics in 1992 and a PhD in Pure Mathematics in 1995 from the University of Leeds. Mr. Clarke is on the Board of Directors of Klöckner Pentaplast and is on the Supervisory Board of Pfleiderer.

HJ Woltery
Managing Director

Mr. Woltery, 52, is Co-Head of the European investment team having joined SVP at the opening of the European office in 2004. From 1985 to 2004, Mr. Woltery worked at Deutsche Bank in various roles, most recently as a Senior Research Analyst and Head of Research, Germany, in the London Distressed Products Group, where he was responsible for covering European credits across a variety of industries and jurisdictions. Mr. Woltery received a Diploma in Banking from the Bank Academy in Aachen/Coburg in 1991 and an MBA from the Ashridge Management College in 2001.

Senior Infrastructure Team

Jean-Louis Lelogeais
Co-Founder & Senior Managing Director

Mr. Lelogeais, 59, is responsible for strategic relationships. From 1999 to 2001, Mr. Lelogeais oversaw business development for Moore Strategic Value Partners, a joint venture with Moore Capital Management LLC. From 1997 to 1999, Mr. Lelogeais headed Lelogeais & Co., LLC, an advisory firm focused on strategic management issues in global wholesale financial services. Prior to that, he was a Managing Director at Chase Manhattan Bank from 1994 to 1997, where he participated in the Global Bank strategic repositioning, and after the merger with Chemical Bank, implemented the merger integration of the Global Client Management business. From 1985 to 1994, Mr. Lelogeais was a Partner with Booz Allen Hamilton, where he managed the Wholesale Banking and Capital Markets practice. During his more than 10 years as a management consultant, Mr. Lelogeais acquired significant experience across corporate banking and capital markets businesses and in turnaround and growth strategies. Mr. Lelogeais received an MS in Engineering from Ecole des Mines in 1981 and an MS in Management Sciences from the Massachusetts Institute of Technology in 1985.

Edward Kelly
Managing Director & Chief Operating Officer

Mr. Kelly, 49, oversees the finance, operations and legal functions of the firm. From 1999 to 2006, Mr. Kelly was a Partner and Chief Financial Officer for Sagamore Hill Capital Management. From 1998 to 1999, Mr. Kelly was Chief Financial Officer of Croesus Capital Management. Prior to that, Mr. Kelly worked at Goldstein Golub Kessler from 1990 to 1998, where he was a Senior Manager specializing in audit, tax and consulting services for hedge funds and broker-dealers. Mr. Kelly received a BS in Accounting from State University of New York at Albany in 1990.

Michael Hewett
Managing Director

Mr. Hewett, 48, is Global Head of Investor Relations. From 2004 to 2010, Mr. Hewett worked at Terra Firma Capital Partners most recently as a Managing Director and Head of Investor Relations. From 1999 to 2004, Mr. Hewett was part of the senior team of Atlantic-Pacific Capital, an institutional placement firm. From 1991 to 1999, Mr. Hewett held various positions at Morgan Stanley in London and Tokyo, mostly in the private equity area. Mr. Hewett received a BA in 1991 and an MA in 1995 in Politics, Philosophy and Economics from the University of Oxford.

SVP funds' Advisory Council

José Barreiro
Member – SVP funds' Advisory Council

Mr. Barreiro, 59, is primarily involved in furthering the European franchise, in particular Spanish relationships. Mr. Barreiro has more than 30 years of experience in the banking sector. He has held a number of executive positions at BBVA from 1998 to 2012, including Global Head of Corporate and Investment Banking from 2005. He was also a member of BBVA's Executive Committee at Group level from 2005 onwards and most recently a Senior Advisor to the bank. Prior to BBVA, Mr. Barreiro held senior positions at a number of financial organizations, including Banco Santander, Bankers Trust Company and Chase Manhattan Bank. In addition to nonprofit board roles, he was, until recently, Deputy Chairman of Bolsas y Mercados Españoles, the operator of all stock markets and financial systems in Spain.

Sir David Cooksey
Member – SVP funds' Advisory Council

Sir David Cooksey, 77, is primarily involved in furthering the European franchise. Sir David was appointed Chairman of UK Financial Investments in 2009 at the height of the financial crisis. He retired from that role in January 2012. He is Chairman of Bechtel Ltd and the Francis Crick Institute. Sir David has held a number of senior positions in the private and public sectors including nine years as Chairman of the Audit Commission and 11 years as a Director of the Bank of England. He has been an advisor to HM Government on innovation policy, leading several taskforces and review teams. He has been a Governor of the Wellcome Trust. Sir David previously formed Advent Venture Partners in 1981, one of the first private equity/venture capital firms in the UK and was a co-founder of Advent International in 1983. Sir David was knighted in 1993 and appointed a Knight Grand Cross of the Order of the British Empire (GBE) in 2007. Sir David has a degree in Metallurgy from the University of Oxford.

Prof. Dr. Bernd Fahrholz
Member – SVP funds' Advisory Council

Prof. Fahrholz, 70, is primarily involved in furthering the European franchise, and in particular, the German franchise. Previously, Prof. Dr. Fahrholz served as Deputy Chairman of the Board of Allianz AG and as Chief Executive Officer of Dresdner Bank AG. He joined the bank in 1977 and over his career, ran various departments in the corporate and investment banking business. Presently, he is, among other activities, serving on several Advisory Boards (e.g. Supervisory Board of Fresenius Medical Care, Chairman of the Supervisory Board of Smartrac NV, Amsterdam). He is also a Professor at Frankfurt University and studied law at the Universities of Göttingen and Hamburg, receiving his doctorate in 1978.

SVP funds' Advisory Council

Ian Guthrie
Member – SVP funds' Advisory Council

Ian Guthrie, 44, is primarily involved in furthering the European franchise. Mr. Guthrie has 25 years of banking experience in Europe, having previously held a number of executive positions at Lloyds and Halifax Bank of Scotland ("HBOS"). During his time in the corporate restructuring and workout environment, he has overseen a significant number of transactions of transactions across a number of pan-European asset classes. He was most recently Managing Director and Head of Lloyds' Real Estate Business Support Unit, where he was responsible for managing a significant part of Europe's largest non-core real estate portfolio, and a member of the real estate Executive Committee of Lloyds' non-core bank. From 2001 to 2009 he worked at HBOS, where his roles included Head of Impaired Assets, Head of Equity Origination, Head of Integrated Partnerships, Regional Head of Acquisition & Integrated Finance and he also sat on the Bank's Private Equity Board. He started his career at the Bank of Scotland in 1989. Presently, he is a Senior Advisor to Jones Lang LaSalle and also an advisor to H.M. Government on industrial development, providing independent and expert business advice to Ministers on large business investment decisions. Mr. Guthrie has a BA (Hons) degree in financial services, is a Fellow of the Chartered Institute of Bankers in Scotland and a Fellow of the Royal Institution of Chartered Surveyors.

Flip Huffard
Member – SVP funds' Advisory Council

Flip Huffard, 54, is primarily involved in furthering the North American franchise. Mr. Huffard is a retired Senior Managing Director of The Blackstone Group, where he was employed from 1995 to 2014. Mr. Huffard was one of the leaders of Blackstone's Restructuring and Reorganization Group, where he provided financial advisory services to companies and creditors in a wide range of situations. Among others, he worked on transactions including Patriot Coal and Tribune Co. and led Blackstone's restructuring efforts in the shipping industry with deals such as ZIM Integrated Shipping and Excel Maritime. Prior to Blackstone, Mr. Huffard worked at Hellmold Associates, Inc., a distressed investment and advisory firm, and in corporate finance at Smith, Barney, Harris Upham & Co. Mr. Huffard is also Chairman of the board of Vubiq Networks, Inc., a wireless broadband networking technology company and a member of the board at CORE Media Group. He received an AB in Economics from Harvard College in 1985 and an MBA with a concentration in finance and accounting from the Kellogg Graduate School of Management at Northwestern University in 1992.

SVP funds’ Advisory Council

Goran Puljic
Member – SVP funds’ Advisory Council

Goran Puljic, 52, is primarily involved in furthering the North American franchise. His primary goal is to help broaden relationships with non-bank debt investors to augment SVP’s sourcing capabilities and help identify potential lenders to SVP portfolio companies. Mr. Puljic is a retired Partner of Oak Hill Advisors, where, from 2008 to 2016, he was a Portfolio Manager and Co-head of the Corporate Structured Products Group focusing on investments in CLOs. He also had primary responsibility for the creation of new Oak Hill CLO vehicles in both the US and Europe. In these capacities, he managed over $2 billion of CLO investments and was in charge of raising, structuring and placing over a dozen CLOs in both the US and Europe since 2011. From 2002 to 2008, Mr. Puljic was a Managing Director at Lehman Brothers Private Equity group where he founded and ran the Structured Products Investment Group. Prior to this, Mr. Puljic was a Managing Director at Goldman Sachs for nearly ten years, where he held various roles in derivatives and structured products including Head of Fixed Income for Goldman Sachs Germany. He began his career at Morgan Stanley, Westpac and Lehman Brothers. Mr. Puljic received a BA in Economics and graduated cum laude from Columbia University in 1986.

David Weaver
Member – SVP funds’ Advisory Council

David Weaver, 58, is primarily involved in furthering the European franchise. Mr. Weaver has over 34 years of experience in the financial services sector, most recently as CEO and Chairman of the Board at Jefferies International, where he led the firm's European expansion over a nine year period. Prior to this, Mr. Weaver was a senior banker at Deutsche Bank/Alex Brown & Sons, serving as Global Head of Technology Investment Banking, Head of Europe Client Coverage and Head of European Equity Capital Markets. Mr. Weaver began his career at the Irving Trust and then founded and led a public-sector finance group at Sumitomo Bank in New York. Mr. Weaver graduated from Williams College in 1982 with a BA in English literature and received an MBA from Harvard Business School in 1990.

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Unless the context indicates otherwise, the terms “SVP”, “we”, “us”, “our” and similar terms refer to Strategic Value Partners, LLC and its respective affiliates.

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The market views and opinions included in this presentation represent the views and opinions of SVP only and should not be construed as investment advice. In connection with the preparation of these materials, SVP and its affiliates have relied on certain assumptions, as well as certain information provided by portfolio companies, the accuracy of which has not been verified by SVP. Future performance and events could vary materially from the outcomes predicted herein.

Target return and volatility figures do not, nor are they intended to, constitute a promise of actual results. Actual returns and volatility may vary significantly from the target figures included in this document.

This presentation includes various forward-looking statements with respect to the Funds. The words “anticipates,” “projects,” “intends,” “estimates,” “expects,” “believes,” “plans,” “may,” “will,” “should,” “could,” and other similar expressions are intended to identify such forward-looking statements. Forward-looking statements are necessarily speculative, speak only as of the date made, and are subject to numerous assumptions, risks and uncertainties, all of which may change over time. The following factors, among others, could cause actual results to differ materially and adversely from those projected by means of such forward-looking statements: operational factors relating to the performance of the Funds, market conditions, and general economic conditions. Any statements made that are not historical facts should be considered to be forward-looking statements.

Investments described herein have been selected to demonstrate investment strategies, techniques and modes of analysis utilized by SVP and should not be considered illustrative or typical of the investments in funds or accounts managed by SVP. It should not be assumed that the investments purchased by funds and accounts managed by SVP in the future will have similar results as the investments discussed in this presentation.

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In relation to each member state of the EEA (each a “Member State”) which has implemented Alternative Investment Fund Managers Directive (Directive (2011/61/EU)) (the “AIFMD”) (and for which transitional arrangements are not/ no longer available), this presentation may only be issued, the Fund may only be marketed and interests may only be offered or placed in a Member State to the extent that: (1) the Fund is permitted to be marketed to professional investors in the relevant Member State in accordance with AIFMD (as implemented into the local law/regulation of the relevant Member State); or (2) this presentation may otherwise be lawfully distributed and the interests may otherwise be lawfully offered or placed in that Member State (including at the initiative of the investor).

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KENTUCKY RETIREMENT SYSTEMS

INVESTMENTS

To: Investment Committee – Kentucky Retirement Systems

From: Anthony Chiu, Investment Officer

Date: February 6, 2018

Subject: Investment Recommendation – New State Capital Partners Fund II

KRS staff and Wilshire are proposing a commitment to New State Capital Partners Fund II, a $200 million leveraged buyout fund that invests in small US companies primarily in the business services, industrial, and healthcare sectors. New State has a disciplined and differentiated sourcing process that has historically resulted in purchase multiples of 5-6x EBITDA. KRS currently has exposure to New State's first fund through Bay Hills III, which committed $16 million in 2015. New State is planning to close Fund II in late February and appears to have investor demand that is significantly above its hard cap of $225 million.

Business / People:

New State was formed in 2013 by David Blechman in New York City and targets buyout investments in US companies with EBITDA of $8 to $15 million. The team consists of 7 mostly senior employees, with Principals that have been successful at larger value-oriented private equity firms, including HIG, Sun Capital, and Gryphon Investors. New State also utilizes a group of 16 senior industry partners for sourcing, due diligence, and advising portfolio companies. The firm also has 3 full-time employees in India dedicated mainly to CRM management as well as other tasks typically performed by analysts. Carry and economic ownership are shared among four partners, with Blechman having the largest share.

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Performance:

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Conclusion: Staff is recommending an investment of $20 to $25 million (depending on allocation) in New State Capital Partners Fund II to be shared between the following plans: KERSH, CERS, CERSH, and all 5 Insurance plans. Because of the illiquid nature of this opportunity, we do not recommend it for the KERS or SPRS pension plans.

<u>Investment and Terms Summary</u>

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NEW STATE CAPITAL PARTNERS

New State Capital Partners Fund II, LP

Winter 2017

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Overview

NEW STATE CAPITAL PARTNERS

Team with major PE firm experience executing on deep value small cap buyouts

Specialized Deep Value Strategy	■ Seek to uncover value opportunities (average [redacted]) by sourcing broadly, exploiting market inefficiencies and selecting the best 1-2 platform investments per year ■ Focus on healthcare, business services and industrial companies [redacted] ■ Market agnostic
“Good to Great” Approach to Value Creation	■ Leverage industry partners and consultants to execute on identified investing themes and operating strategies ■ Thesis seeks to at least double EBITDA ■ Target sectors where the team collectively has expertise – seek scalability and potential for high exit multiples
Established Platform and Experienced Team	■ Seven platform investments and 11 add-ons ■ Team of seven managed by four principals with diverse institutional backgrounds ■ Supported by industry-focused operating partners and three outside directors ■ [redacted]
Differentiated Strategy with Strong Momentum	■ [redacted] ■ [redacted] ■ No change in deal size or investment pace

Team Summary

- Senior-level focus on each transaction; Leverage Senior Industry Partners and Outside Directors
- Big firm institutional practices applied to small cap companies

David Blechman, Principal
HIG, Sun Capital, Blackstone, Lehman
Columbia Business School MBA and Adjunct Professor, University of Chicago BA

John Beauclair, Principal
Gryphon Investors, Sun Capital, Vector Capital
Wharton MBA, University of California at Berkeley BA

John Kim, Principal
UBS, Credit Suisse First Boston, DLJ
University of Chicago BA

Steve Larned, Principal
Welsh Carson, Dell, Bain Consulting
Harvard Business School MBA, Duke University BA

Ajay Gupta, Operating Partner
Envision Healthcare, CMS and HCA
Vanderbilt MBA, University of North Carolina BS

Additional Support

- **Randy Burns, Vice President**
- **Clare McIntyre, Office Manager**
- **Support from 3 FTEs located in India**
- **2 associate-level hires planned**

Sr. Industry Partners, Directors & Advisors

- **Deep bench of 16 specialized Senior Industry Partners and Outside Directors**
- **Senior-level focus from outside advisors – legal, tax and transaction advisory services**

Examples of Senior Industry Partners

- **Mike Laisure** – Automotive and Manufacturing – 40 year veteran of the industrial manufacturing; Former CEO of Fluid Routing Solutions; Current CEO of API Heat Transfer
- **Frank Muehleman —** IT Services — 35 year career in General Management and Strategy Consulting. 16 years as a senior executive leading multi-billon dollar business units at Dell, Inc. including VP/GM Global Software Sales, VP/GM North American Public Sector business unit and VP/GM Worldwide Small and Medium Business Unit
- **Mike Scott** – Specialty Finance – 23 years in operational and financial consulting; Previously, New State Principal and Investment Team member and Partner in the Restructuring practice at E&Y
- **Maureen Spivack** – Healthcare Services – 30 year investment banking career focused on advising on healthcare transactions

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NEW STATE CAPITAL PARTNERS

Seeking opportunities to take companies from "Good to Great"

Differentiated Sourcing

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Projected performance and target returns are forward looking estimations that should not be relied on when making an investment decision. Such estimations are based on a number of assumptions, including that Fund II will be able to make investments aligned with its investment objectives. No representation is made that such investments will be able to be made by Fund II. Further, no representation is made that the projected performance and target performance or targets returns identified above will be achieved. Actual performance and returns could vary materially.

Deal Sourcing Approach

New State believes its approach is different from other firms

[redacted]

Huge pool; Disciplined Selection

Executed Platforms Pre-Fund & Fund I

Seven Platforms - Every Process

[redacted]

Deal Funnel LTM – as of September 2017

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NEW STATE CAPITAL PARTNERS

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Target returns are forward looking estimations that are aspirational only and should not be relied on when making an investment decision. Such estimations are based on a number of assumptions, which may not prove to be true. No representation is made that the target returns identified above will be achieved. Actual returns could vary materially.

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[redacted] are forward looking estimations that are aspirational only and should not be relied on when making an investment decision. Such estimations are based on a number of assumptions, which may not prove to be true. No representation is made that the target returns identified above will be achieved. Actual returns could vary materially.

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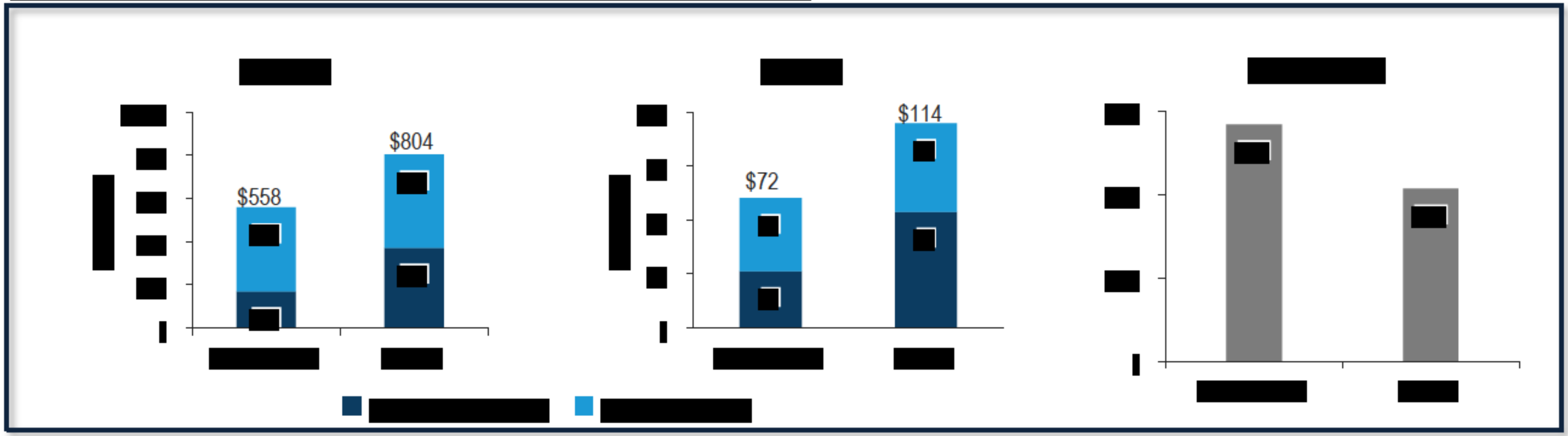

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NEW STATE CAPITAL PARTNERS

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Highlights

NEW STATE CAPITAL PARTNERS

- Established team, executing on all aspects of stated strategy
- Strong team in place and sufficient bandwidth to manage Fund II
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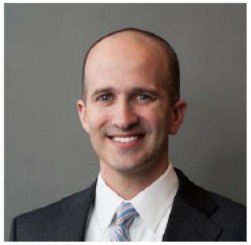
Team Biographies



Dave Blechman, Principal - Dave founded New State Capital Partners in 2013 after 18 years of private equity and investment banking experience. Dave has transaction and operating experience across a variety of industries, including industrials, business services, healthcare services and consumer retail. He has led investments in private and public companies, corporate carve-outs and complex restructurings.

Previously, Dave was Managing Director at H.I.G. Capital, based in New York, investing the firm's LBO funds. Prior to H.I.G. Capital, Dave was Managing Director with Tower Three Partners, based in Greenwich, CT, and Principal at Sun Capital Partners, based in New York. Prior to Sun Capital, Dave spent five years with The Blackstone Group in their Restructuring and Reorganization practice. Dave began his career with Lehman Brothers investment banking, working in Chicago and London.

Dave holds a B.A. in Economics from University of Chicago and earned his M.B.A. from Columbia Business School. Dave also previously served as Adjunct Professor of Finance at Columbia Business School.

John Beauclair, Principal - John joined New State Capital Partners in 2013 following over 18 years of experience in investment banking, private equity, and operations. John has significant experience sourcing and executing transactions across a broad range of industries, including manufacturing, specialty vehicles, agriculture, packaging, and business services.

Previously, John was a Principal with Vector Capital, a 2.2B fund focused on the technology sector. Prior to Vector, John was with Gryphon Investors, where he oversaw the firm's special situations and business development efforts. Prior to Gryphon, John worked at Sun Capital Partners, where he focused on distressed and value investment opportunities across a number of industries. Earlier in his career, John co-founded TransOcean Capital, Inc., a middle-market private equity firm which serves investors in the MENA region. His work at TransOcean involved highly complex capital structures designed for TransOcean's off-shore investor base.

John holds a B.A. in Political Science from the University of California at Berkeley and earned his M.B.A. with a major in Finance from The Wharton School.

Team Biographies

John Kim, Principal - John joined New State Capital Partners in 2013. Prior to joining, John spent over 14 years in investment banking. Most recently, John was an Executive Director in the Financial Sponsors & Leveraged Finance Group at UBS Investment Bank, where he was responsible for originating and executing leveraged buyouts, recapitalizations and refinancings as well as co-covering middle market private equity firms. Prior to UBS, John was at Credit Suisse First Boston (previously Donaldson, Lufkin & Jenrette) in the Private Placements Group, where he helped raise over $2 billion for growth companies in a variety of industries. John began his career at Deutsche Bank in the Commercial Real Estate Finance Group.

John holds a B.A. in Economics from the University of Chicago.

Steve Larned, Principal - Steve joined New State Capital Partners in 2016 with more than 30 years of experience in executive management, strategy consulting and private equity operations. Steve has led operating teams, developed strategies and advised executives across a range of industries including tech services, healthcare, information/business services, manufacturing and distribution.

Prior to New State, Steve was a Sr. Operating Executive at Welsh, Carson, Anderson & Stowe responsible for working with portfolio company management to develop and implement growth and EBITDA enhancement plans in both healthcare and information/business services. At WCAS, Larned was also deployed in board roles and led a healthcare company as interim CEO. Previously, Steve was a senior executive at Dell, Inc. where he led B2B teams to drive profitable growth in a range of VP / GM roles including leading the Americas Marketing organization, the Preferred Accounts Division and the Americas Server and Storage team. Steve started his career at Bain & Company where he worked on commercial/ industrial and consumer product projects.

Steve holds a B.S. Economics from Duke University and earned his M.B.A. from the Harvard Business School.

Team Biographies

Ajay Gupta, Operating Partner - Ajay joined New State Capital Partners in 2017 following over 17 years of experience in executive management, investment banking, consulting, and government policy. Ajay has transaction and operating experience across a variety of industries, including healthcare & business services, pharma and clinical research. He had led investments in private and public companies, risk-capitation strategies for healthcare services, corporate restructuring and financial operations.

Previously, Ajay was CFO/COO for Evolution Health, LLC a post-acute healthcare delivery company that was a wholly owned subsidiary of Envision Healthcare. Prior to Evolution Health Ajay was CFO/COO for Integrated Oncology Network, LLC a national cancer development company. Before joining ION, LLC Ajay was appointed by the Obama Administration to serve as senior advisor for CMS in Washington DC. Ajay advised on national healthcare reform (ACA) including development and issuance of major policy guidance around Medicare, program integrity and the Centers for Medicare and Medicaid Innovation Center. Ajay also worked at HCA Healthcare in Nashville where he was the founding CFO for the national oncology & diagnostic imaging divisions; and CFO for Sarah Cannon Research Institute. Early in Ajay's career he worked at Shattuck Hammond Partners, LLC within the M&A group in NY. Ajay started his career as a consultant for Arthur Andersen LLP within the Pharmaceutical, Biomedical and Healthcare Division in Atlanta.

Ajay received his Bachelor of Science in Public Health from UNC at Chapel Hill and earned his MBA from Vanderbilt University.

Randy Burns, Vice President - Randy rejoined New State Capital Partners in 2017 with almost 9 years of middle market private equity and investment banking experience. He previously work for the firm while completing business school in the spring of 2015. Randy has transaction and investment experience across a wide range of industries including building products, consumer products, food and beverage, healthcare services, and industrials.

Prior to rejoining New State, Randy founded the private investment firm Buffalo Point Partners to pursue the acquisition of a small portfolio of businesses in and around his home state of Arkansas. He was previously a Vice President at Highlander Partners, a private investment firm with over $1.2 billion of capital that acquires manufacturing businesses with a buy and build approach to organic and add-on acquisition-driven growth. Randy began his career in the Industrials Investment Banking Group at Stephens Inc.

Randy received his M.B.A. from Columbia Business School and his undergraduate degree in finance from the University of Arkansas.

Disclaimer

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KENTUCKY RETIREMENT SYSTEMS

INVESTMENTS

To: Investment Committee – Kentucky Retirement Systems

From: Andy Kiehl, Director of Investments

Date: February 6, 2018

Subject: ArrowMark Partners - Regulatory Capital Relief Strategy \ Recommendation

In 2017, KRS staff began substantive conversations regarding the investment strategy known as Regulatory Capital Relief. Although not an extensive list of managers offering a focused strategy, staff engaged in detailed conversations with 3 of the most prominent investment teams in the sector. Additionally, staff consulted with industry experts, other institutional investors and consultants regarding all aspects of the asset class. Finally, staff contacted references who currently invest with ArrowMark in this discipline (A large university in the Southwest, and the ultra-high net worth unit of one of the largest banks in the US).

Opinion of staff is that ArrowMark offers the best combination of return, alignment of interests, fee structure and risk profile for investing in the Regulatory Capital Relief sector.

Type of Investment: Opportunistic Credit – Regulatory Capital Relief Transactions

Structure: GP/LP in a Separate Account / Fund of One Vehicle

Target Return: 10% – 12% net-of-fees annual return, distributed quarterly.

Management Fee: 0%

Hurdle Rate: No hurdle rate or preferred return.

Performance Fee: 15% of net realized profits.

Term of Structure: To be determined – possible evergreen.

Purpose: Allocate assets to non-correlated investment opportunity with above stated assumed rates of return, favorable risk profile and current quarterly income.

Risks: Credit Risk, Liquidity Risk, Manager Risk, Macro-economic Risk

Staff is recommending an initial investment of 1% of total fund assets (approximately $175MM) with ArrowMark Partners, to be managed as a Separate Account (Fund of One). This investment will be shared among all plans in both Pension and Insurance.

ARROWMARK
PARTNERS

KENTUCKY RETIREMENT SYSTEMS | FEBRUARY 6, 2018

NOT A PUBLIC OFFERING

Disclosures

This communication is provided for information purposes only. This is not an offer to sell or solicitation of an offer to purchase any security. Any such offer or solicitation may only be made by means of delivery of the Private Placement Memorandum (as it may hereafter be supplemented, amended or restated, the "Memorandum") of the applicable investment partnership (the "Partnership" or "Fund"). All statements made herein are qualified in their entirety by the applicable Memorandum. This information is strictly confidential and may not be reproduced or redistr buted in whole or in part nor may its contents be disclosed to any other person under any circumstances.

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.

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 12/31/2017, 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.

ArrowMark Partners is a trade name for ArrowMark Colorado Holdings, LLC, a registered investment adviser. APT000753 EXP 05/01/2018

ArrowMark Partners

Investment Approach & Transaction Information

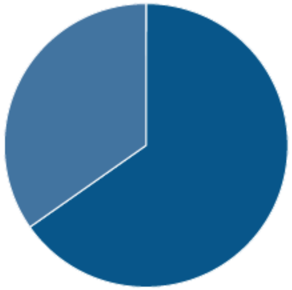
Appendix

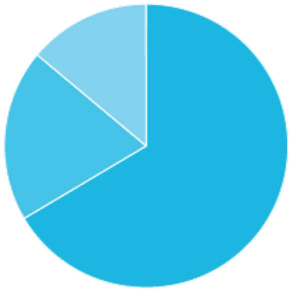
ArrowMark Partners: At-A-Glance

Established in 2007 by veteran investment professionals with a proven track record of delivering upon investor objectives and preserving capital throughout market cycles

- 60 employees including 37 tenured investment professionals with an average of 14 years of experience
- Active investment process, driven by proprietary fundamental research and analysis
- Investment expertise in credit-oriented fixed income and select equity strategies
- Skilled ability to identify asymmetric risk-reward investment opportunities in specialized and niche areas of the capital markets
- Manage alternative, traditional, and customized investment strategies for institutions, financial intermediaries, and family offices
- 100% employee-owned
- Headquartered in Denver, CO with offices in California and New York

$15.9 billion in Assets Under Management
(as of 12/31/2017)





BY ASSET CLASS ($B)

Equity
$10.2

Fixed Income
$5.7

BY CLIENT TYPE ($B)

Institutional
$10.6

Financial Intermediary
$3.1

Family Office
$2.2

As of 12/31/2017.
Past performance is no guarantee of future results. There is no assurance the objectives may be met.

ArrowMark Partners: Credit Capabilities

Expertise across niche segments of the credit markets combined with insights and experience from the Firm's roles as an investor and issuer

TARGET CHARACTERISTICS	CORE CAPABILITIES	SECTORS
Asymmetric	Corporate	Regulatory Capital Relief
Opportunistic		Collateralized Loan Obligations
Risk-First		Lower, Middle Market Financing Solutions
Capacity-Constrained	Securitized	Asset-Backed Securities
Uncorrelated		Agency Securities
Floating Rate		Commercial Mortgage-Backed Securities
	Structured	Residential Mortgage-Backed Securities
		Other Niche Opportunities

ArrowMark Partners: Deep, Experienced Investment Team

Portfolio managers invested over $1.2bn in 20 distinct transactions since 2010. Sourcing, structuring, fundamental research, and risk management expertise of the Firm's 37 investment professionals

Regulatory Capital Relief Investment Team

David Corkins
Partner, Co-Portfolio Manager
31 Years of Experience

Kaelyn Abrell
Partner, Co-Portfolio Manager
18 Years of Experience

+ 5 Investment Analysts
Average 11 Years of Experience

Regulatory Capital Relief Investment Committee

David Corkins

Kaelyn Abrell

Karen Reidy
Partner
26 Years of Experience

Sanjai Bhonsle
Partner
22 Years of Experience

ArrowMark Investment Team

37 Investment Professionals / Average 14 Years of Experience

Operations, Compliance, Legal, Technology, Investor Relations

Infrastructure of a $15.9bn diversified asset management firm

As of 12/31/2017.

ArrowMark Partners: Cultural Differentiation

The Firm's culture is defined by diverse yet complementary experience, collaboration, commitment to fundamental research, and desire to build strong alignment with investors

Team Experience and Continuity	▪ Intensely collaborative, highly integrated culture ▪ Decades of experience working together through multiple market cycles ▪ In-depth knowledge across the capital structure
Specialized and Agile Platform	▪ Established platform for capturing opportunities from compelling, niche markets ▪ Focused on segments where our size and agility offer a distinct competitive edge ▪ Select credit, equity, and customized investment strategies
Risk-First Fundamental Research	▪ Accomplished ability identifying complex, asymmetric risk/reward opportunities ▪ Strong belief that downside mitigation is critical for long-term success ▪ Disciplined investment process based on proprietary, fundamental analysis
Clients at Our Core	▪ Privately held firm driven by client needs, not corporate mandates ▪ Deep passion for solving challenges and building strong partnerships ▪ Long-term perspective that prioritizes clients' best interests

ArrowMark Partners

Investment Approach & Transaction Information

Appendix

Regulatory Capital Relief Investing with ArrowMark

Opportunity | Sourcing | Diligence | Risk Management | Outcomes

Seeks to achieve investors' long-term objectives by partnering with global banks through regulatory capital relief transactions

- Attempt to capitalize on potential double-digit security coupons and expected resiliency during periods of market stress through disciplined issuer and security selection
- Emphasis on floating rate, income-driven returns with downside mitigation contributes to low historical correlation to traditional and alternative asset classes
- Recent spread widening further enhances the absolute and relative return potential of the asset class

Benefit from ArrowMark's experience investing over $1.2bn in 20 distinct transactions since 2010

- Opportunistic Approach: Flexible investment process that continues to adapt as the market and opportunity set evolve
- Sourcing: Relationships, scale, and reputation developed over decades in the industry and seven years of consistent participation in the asset class
- Structuring: Ability to tailor security structures to a range of collateral types, issuers, and regulatory jurisdictions
- Fundamental Research: In-depth loan-level analysis led by seven core team members with the ability to draw upon ArrowMark's 37 investment professionals
- Risk Management: Mitigation of unintended risks through thorough due diligence, investment discretion, and disciplined portfolio construction

Investor Alignment

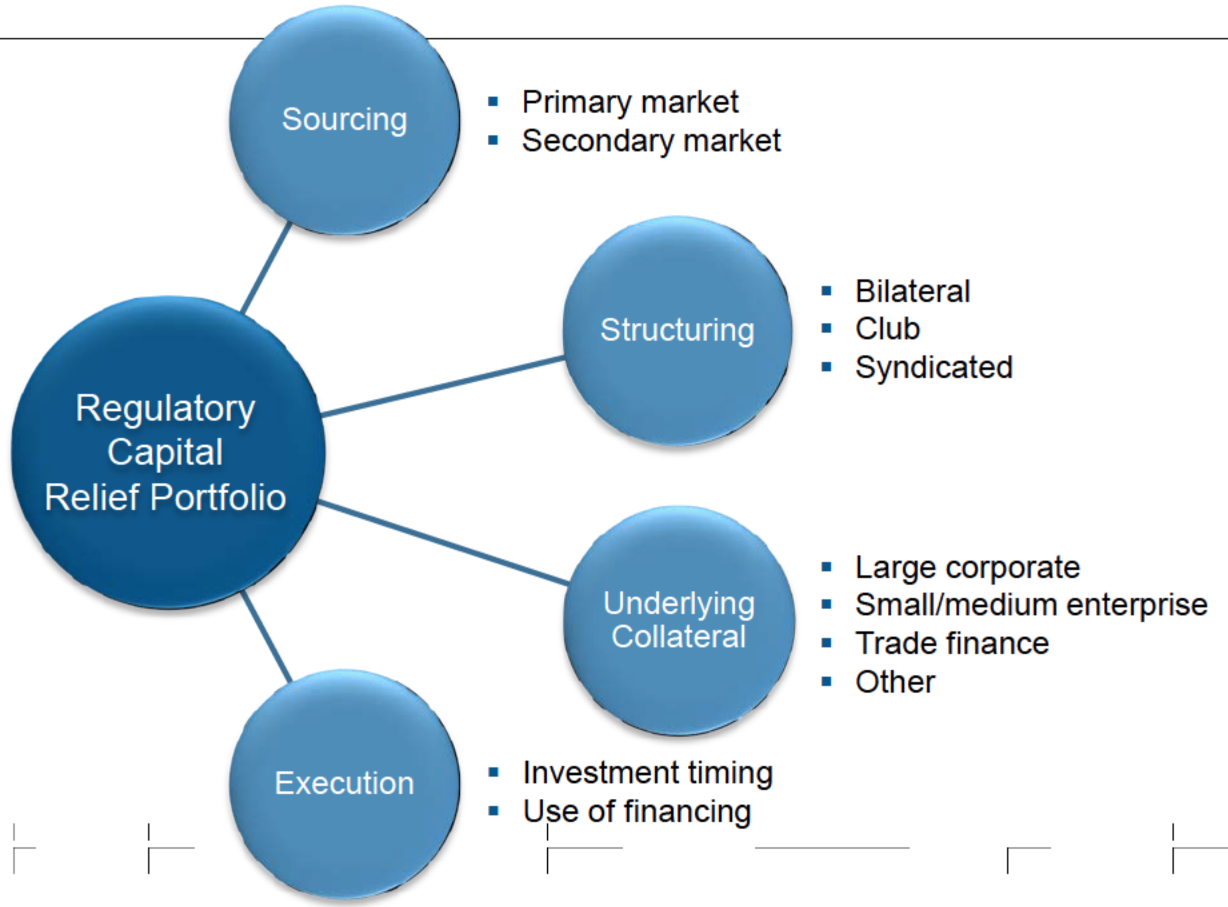
- Transaction structures create alignment with the issuing bank
- Ability to customize vehicle and exposure to the asset class creates alignment with investor objectives
- Incentive fee-only structure creates alignment with ArrowMark

As of 12/31/2017. **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.

Opportunistic Investment Approach

Opportunity Sourcing Diligence Risk Management Outcomes

- The capability to pursue a variety of transactions enables the team to deploy capital efficiently and, in our view, capitalize on the most attractive opportunities at any point in time



As of 12/31/2017.

Pronounced Sourcing Advantages

Opportunity | **Sourcing** | Diligence | Risk Management | Outcomes

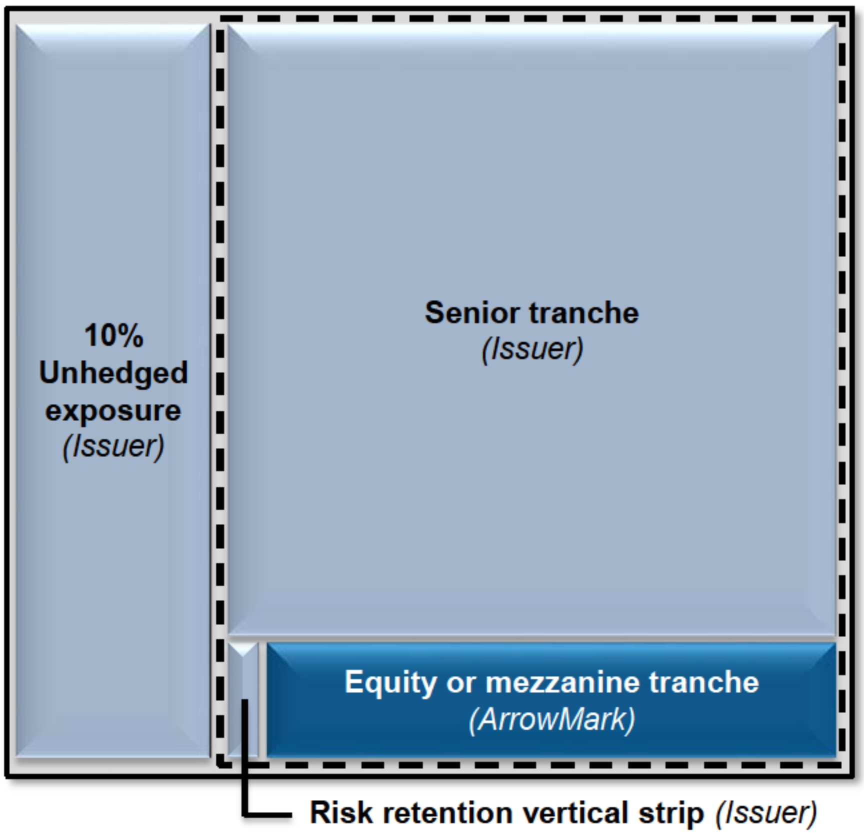
Long-Term Relationships	▪ Decades in the industry including prior roles at global financial institutions ▪ Over seven years investing in the asset class ▪ Contacts developed through the Firm's diverse investment and structuring activities ▪ Partnerships with long-term issuers that are beginning to issue on behalf of third parties
Consultative Approach	▪ Emphasis on cultivating and nurturing relationships through ongoing engagement ▪ Thought leader in relation to security structures and tradeoffs ▪ Extensive industry network that positions the team as a source of real-time market color
Firm Alignment	▪ Independent asset management firm focused on achieving investor objectives ▪ Long-term, buy and hold investment approach ▪ Diversified sources of patient capital
Experience & Reputation	▪ Established, respected investor with over $1.2bn invested in 20 transactions ▪ History of early investments in niche market opportunities including the Term Asset-Backed Securities Loan Facility ("TALF") program ▪ Structuring and fundamental research expertise to evaluate new and more complex investment opportunities ▪ Deep familiarity with historical transactions to capitalize on increasing secondary market activity

As of 12/31/2017.

Experience Structuring for Varying Collateral, Issuers, and Regulatory Frameworks

- Emphasize thorough evaluation and negotiation of structural characteristics for all regulatory capital relief investments
- Flexible approach with a focus on ensuring alignment with issuing banks and mitigating undesired risks

Typical Structure



Typical Characteristics

Collateral	▪ Focus on core lending books of issuing banks ▪ Historical investments primarily in large corporate, small/medium enterprise, and trade finance ▪ Evaluation of new security types as the market continues to evolve
Issuer	▪ Established global financial institutions ▪ Historical investments primarily with U.K. and Eurozone banks ▪ Ongoing discussions with potential new Eurozone and Asian issuers
Coupon	▪ 3-month LIBOR base rate ▪ Contractual spread that has recently ranged from 1025bps-1250bps ▪ Paid/distributed quarterly
Expected Maturity	▪ 3 to 5 years for new issues

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

Structural, Collateral, and Issuer Analyses are Critical to Our Assessment of Investment Fundamentals

- The team places equal emphasis on in-depth analysis of security structure, underlying collateral, and the issuer's underwriting process
- The research process involves seven core team members with the ability to draw upon ArrowMark's 37 investment professionals

Structure

- Security characteristics and investment terms
- Structural protections and enhancements
- Points of alignment with the issuer

Collateral

- Reference portfolio guidelines
- Position-level qualitative and quantitative analysis
- Diversification across geographies, sectors, borrowers, and risk factors

Issuer

- Underwriting processes and standards
- Utilization and structuring of financial covenants
- Resources and tools involved throughout the life cycle of a loan
- Historical loan portfolio performance

Transaction-Specific Scenario Analysis

As of 12/31/2017. Diversification does not eliminate the risk of experiencing investment loss.

Scenario Analysis Guides Security Return Expectations

Opportunity | Sourcing | **Diligence** | Risk Management | Outcomes

- Stress key leverage points to evaluate potential outcomes across a range of market environments
- The below analysis demonstrates the resiliency of regulatory capital relief and the potential for positive returns even in the event of three and a half consecutive years of peak default rates

[redacted]

Source: ArrowMark, Moody's. [1] As of security issuance in 2017. [2] Moody's corporate bond default data covers the period from 1981 to 2016. [3] Default rates are applied every year over the security's expected life. [4] Annual return estimates are calculated using the security coupon, assumed default rates and recovery rates. Differences between modeled assumptions and actual performance may significantly impact performance. Diversification does not eliminate the risk of experiencing investment loss. The above example is hypothetical and does not represent the returns or characteristics of a particular investment.

Emphasis on Risk Mitigation

- ArrowMark's risk management approach complements the risk mitigating attributes of regulatory capital relief securities

Risk Factor	Mitigants	
Credit	Security Attributes	▪ High quality, performing loans and revolving lines of credit ▪ Collateral diversification
	ArrowMark Approach	▪ Loan-level fundamental analysis ▪ Evaluation of market and issuer loss history for similar collateral ▪ Conduct scenario analysis to define best/base/stressed outcomes in a variety of macroeconomic environments
Interest Rate	Security Attributes	▪ Floating rate coupons, based on 3-month LIBOR
Currency	ArrowMark Approach	▪ Hedging of any non-USD transactions
Liquidity	ArrowMark Approach	▪ Vehicle term matches asset maturity
Counterparty	Security Attributes	▪ Alignment through issuers' retained exposure ▪ Segregation of investment principal and limitations on bank's ability to access the capital ▪ Various additional measures that can include principal held by third parties, downgrade triggers, and country-specific regulations
	ArrowMark Approach	▪ Initial due diligence and ongoing monitoring of all counterparties ▪ Partner with Global Systemically Important Banks ("G-SIBs")

Diversification does not eliminate the risk of experiencing investment loss.

33 Investments in 20 Transactions and Over $1.2bn of Capital Deployed Since 2010

- ArrowMark's regulatory capital relief investment track record demonstrates the strength of the Firm's sourcing, structuring, fundamental research, and risk management efforts
- [redacted]

[redacted]

As of 12/31/2017. **Past performance is no guarantee of future results.**

Asymmetric Historical Performance

ArrowMark's track record reinforces the potential for asymmetric returns from successful, long-term investment in the asset class

[redacted]

Portfolio Diversifier

- Regulatory capital relief performance exhibits low correlation to traditional and alternative asset classes commonly held in diversified investment portfolios

	ArrowMark Regulatory Capital Relief (Gross)	Barclays High Yield	S&P/LSTA Leveraged Loan 100	Markit iTraxx Crossover	Barclays Aggregate	Barclays Global Aggregate (unhedged)	JPM Emerging Markets Bond	S&P 500	Russell 2000	MSCI ACWI ex U.S.	MSCI Europe	MSCI Emerging Markets	HFRI Fund Weighted Composite	Bloomberg Commodity	FTSE EPRA/NAREIT Developed REIT
ArrowMark Regulatory Capital Relief (Gross)	1.00	0.37	0.23	0.31	0 00	0.17	0.31	0 38	0.36	0.36	0.23	0.38	0.39	0.35	0.33
Barclays High Yield		1.00	0.85	0.77	0 20	0.45	0.70	0.73	0.64	0.82	0.68	0.78	0.79	0.57	0.72
S&P/LSTA Leveraged Loan 100			1.00	0.75	0 02	0.24	0.44	0.65	0.59	0.71	0.63	0.66	0.71	0.43	0.59
Markit iTraxx Crossover				1.00	-0.02	0.22	0.51	0.79	0.66	0.84	0.83	0.68	0.80	0.30	0.70
Barclays Aggregate					1 00	0.67	0.52	-0.16	-0.27	0.00	-0 01	0.11	-0.07	-0 01	0.37
Barclays Global Aggregate (unhedged)						1.00	0.70	0 20	0.08	0.44	0.03	0.52	0.29	0.44	0.59
JPM Emerging Markets Bond							1.00	0.48	0.29	0.66	0.44	0.71	0.51	0.48	0.71
S&P 500								1 00	0.86	0.84	0.75	0.70	0.87	0.43	0.69
Russell 2000									1.00	0.70	0.62	0.59	0.80	0.40	0.59
MSCI ACWI ex U.S.										1.00	0.76	0.90	0.90	0.56	0.77
MSCI Europe											1.00	0.54	0.76	0.24	0.57
MSCI Emerging Markets												1.00	0.81	0.58	0.73
HFRI Fund Weighted Composite													1.00	0.54	0.69
Bloomberg Commodity														1.00	0.39
FTSE EPRA/NAREIT Developed REIT															1.00

As of 12/31/2017. 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 17 to evaluate the impact of fees and expenses. Data from 02/1/2011 to 12/31/2017. Source: ArrowMark, Bloomberg, FTSE, HFRI, JPMorgan, MSCI, Markit, Russell, S&P.

Diversified Exposures Through Our Opportunistic Approach

ArrowMark emphasizes diversification at the individual security and portfolio levels

[redacted]

ARROWMARK
PARTNERS

ArrowMark Partners

Investment Approach & Transaction Information

Appendix

Contemplated Investment Terms

ArrowMark endeavors to create strong alignment of interests and a long-term partnership with Kentucky Retirement Systems

[redacted]

Compliance and Operational Infrastructure

ArrowMark's regulatory capital relief effort benefits from the resources and relationships of a $15.9bn diversified asset management firm

Personnel & Resources

- Dedicated 9 person team with an average of 15 years experience
- Led by Rick Grove, Chief Compliance Officer and Chief Operating Officer
- Significant historical and ongoing investment in technology to enhance controls and efficiency
- Partnerships with top tier service providers, consultants, and legal counsel

Service Providers

- Goldman, Sachs & Co. (Prime Broker)
- KPMG, LLP (Fund Auditor)
- Vedder Price P.C. / Walkers (Fund Counsel)
- ALPS Alternative Investment Services (Fund Administrator)
- Broadridge Financial Solutions (Portfolio Accounting)
- ACA Compliance Group (Compliance Consultant)

Oversight & Controls

- Registered with the U.S. Securities and Exchange Commission
- Also regulated by the Commodity Futures Trading Commission, National Futures Association, FINRA, and the Cayman Islands Monetary Authority
- All assets held at a third party custodian
- All assets priced by third parties

As of 12/31/2017.

Key Personnel

DAVID CORKINS | Partner, Co-Portfolio Manager

David is a Co-Founder, Partner and Portfolio Manager at ArrowMark Partners. Prior to founding ArrowMark Partners, he served as Executive Vice President and Portfolio Manager at Janus Capital, managing $20 billion for 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). Prior to joining Janus Capital, 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 for ArrowMark Partners. A core member of the ArrowMark team since the firm's inception, Kaelyn leads ArrowMark's fixed income efforts in securitized products and has spearheaded the regulatory capital relief strategy 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 Partners 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.

Contact ArrowMark Partners

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