



Los Angeles • New York

## Review of Illiquid Asset Classes

Rhode Island State Investment Commission

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February 27, 2019

# Table of contents

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Section 1	Private Equity .....	3
Section 2	Opportunistic Credit .....	9
Section 3	Non-Core Real Estate .....	15
Section 4	Private Credit .....	19
Section 5	Infrastructure .....	24
Appendix		
	ERSRI Target Asset Allocation .....	30
	Secondary Investing .....	32
	Private Asset Markets Outlook .....	36

Notes:

- Due to the lag in reporting for illiquid asset classes, all market values and performance information are as of September 30, 2018
- Unless otherwise noted, all performance information is net of fees and annualized



## Section 1: Private Equity

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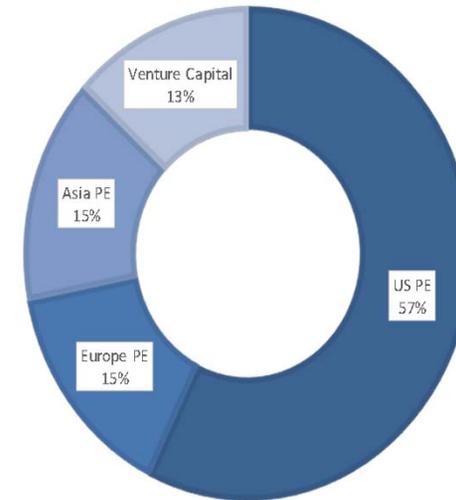
# Private Equity – Current Status (active funds only)

\$1,536 million committed to 78 funds

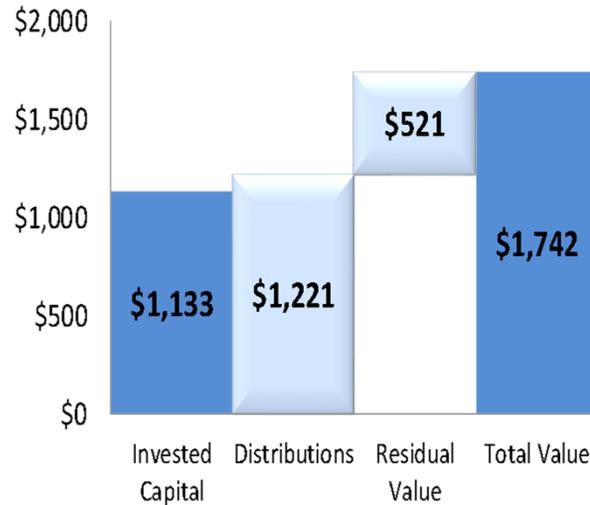
74% of commitments have been invested

Diversified by strategy, geography, and vintage year

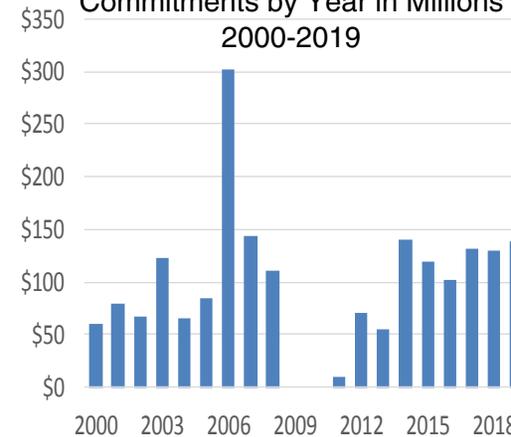
Strategy Diversification by Exposure



Value Creation in Millions



Commitments by Year in Millions  
2000-2019



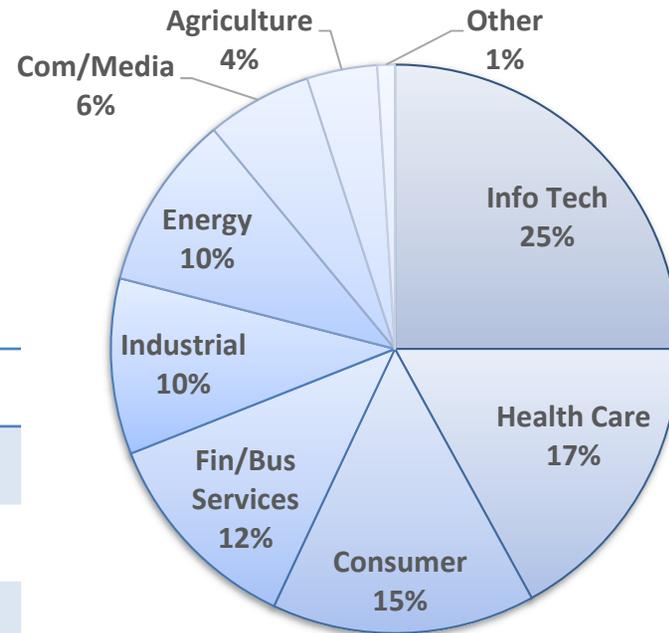
# Company Holdings and Exposures

Over 700 company investments

No investment larger than 1% of total

Diversified by business sector

Business Sector Exposure by Market Value



Examples of Larger Company Holdings

Company	Fund	Sector
Allakos, Inc.	Alta Partners VIII	Health Care
SAFEbuilt	Riverside MC Fund III	Fin/Bus Services
Analogic Corporation	Altaris Health	Health Care
CradlePoint, Inc.	Sorenson Capital	Info Tech
Meadows Food	Paine Schwartz Food	Agriculture
FNB Housing Finance	Carlyle Asia IV	Fin/Bus Services

# Pacing Plan: Private Equity

Policy target of 11.25% within Growth Class

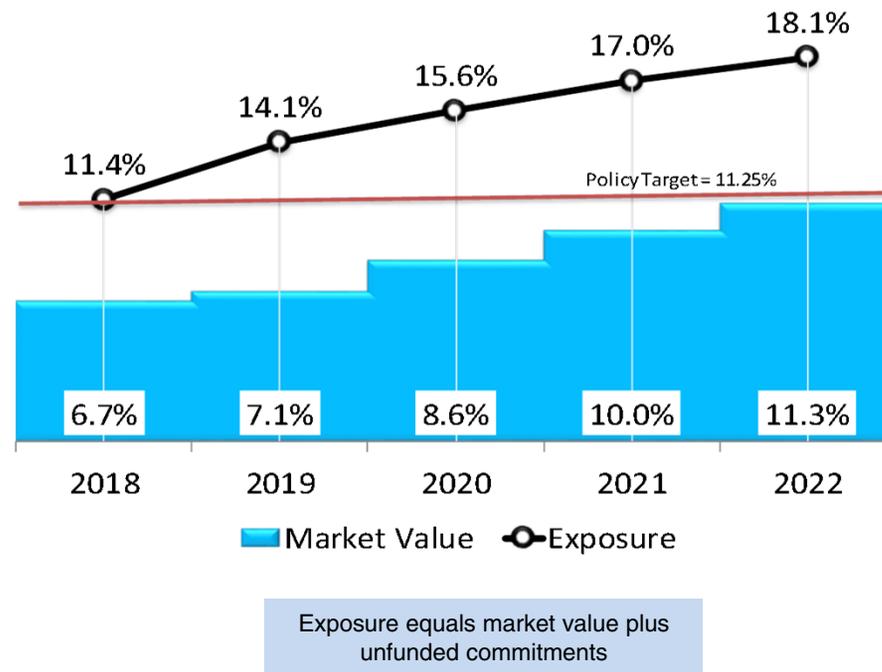
Allocation starts at 6.7% (current allocation\*), increasing to 11.25% by 2022

Unfunded commitments = 5% to 7% of total fund

Opportunistic and diversified pacing:

- Vintage year
  - Maintain level vintage year commitments averaging \$270 mm per year
- Funds:
  - ~5-10 funds per year/\$20-60mm per fund
- Potential Strategies:
  - US Buyouts
  - Growth Equity
  - International Private Equity
  - Venture Capital

**Pacing Plan**  
Market Value and Exposure as a Percent of Total Fund



(\*9/30/18 private equity portfolio market value divided by 12/31/18 total fund market value)

# Private Equity Pacing Plan

<b>ERSRI - Pacing Plan</b>	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Forecast Plan Total Assets	7,810,625	8,044,944	8,286,292	8,534,881	8,790,927
New Commitments		305,000	265,000	265,000	255,000

## Private Equity Fair Value by Sector:

<b>Private Equity Total</b>	<b>521,629</b>	<b>571,009</b>	<b>712,406</b>	<b>854,341</b>	<b>990,999</b>
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Private Equity Fair Value as % of Total Plan Assets	6.68%	7.10%	8.60%	10.01%	11.27%
Private Equity Target Asset Allocation	11.25%	11.25%	11.25%	11.25%	11.25%

Unfunded Commitments and Fair Value	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Private Equity Unfunded Commitments	370,953	564,424	579,146	600,424	602,877
Unfunded Commitments + FV	892,582	1,135,433	1,291,552	1,454,765	1,593,876
Unfunded Commitments + FV as % of Assets	11.4%	14.1%	15.6%	17.0%	18.1%
Ratio of Unf Com + FV to Target Allocation	1.02x	1.25x	1.39x	1.52x	1.61x

Net Cash Flow Requirements	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Total Net Cash Flow to Private Equity	3,213	(83,843)	(70,096)	(50,462)

Total Plan Assets assumed to grow at 3.0%

## Cash flow Forecast

<b>Total</b>	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Drawdowns	(215,529)	(250,278)	(243,722)	(252,547)
Distributions	218,742	166,435	173,626	202,085
Net Cash Flows	3,213	(83,843)	(70,096)	(50,462)
Fair Market Value	571,009	712,406	854,341	990,999

Amounts in \$000

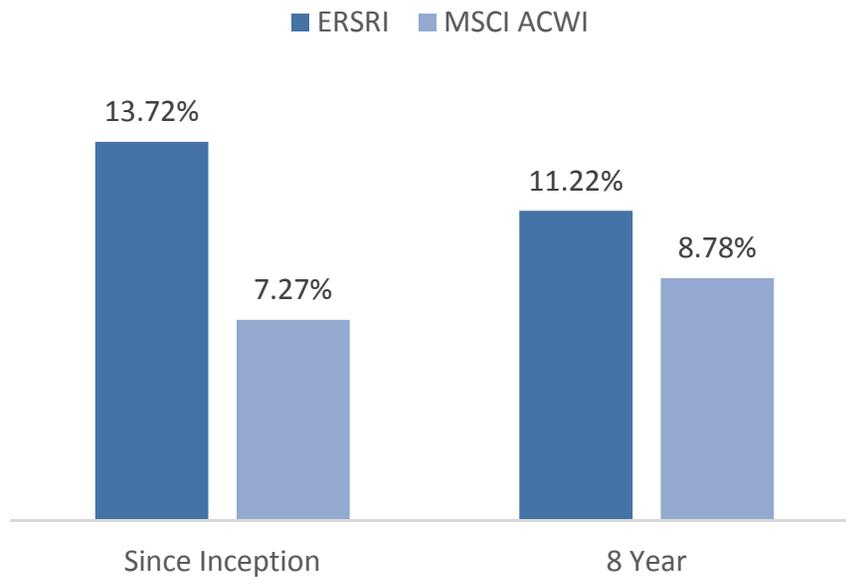
# Recommended Model Portfolio

Strategy	Current Portfolio	Target Portfolio	Range
Total Buyout	<u>82%</u>	<u>80%</u>	<u>60-100%</u>
Global Buyout	3%	10%	0%-20%
US Buyout	<u>54%</u>	<u>50%</u>	<u>30%-70%</u>
Large	6%	10%	5-20%
Middle Market	39%	25%	5-50%
Small	13%	15%	0-30%
Europe Buyouts	9%	12%	10-30%
Asia Buyouts	12%	8%	0-20%
Latin Am Buyouts	0%	0%	0-5%
Growth Equity	3%	10%	0-20%
Venture Capital	14%	10%	0-20%
Other (e.g. secondaries)	1%	0%	0-10%

# Performance versus Public Markets and Private Universe\*

## Performance versus Public Markets

Since inception annualized internal rate of returns net of fees



\* Performance as of September 30, 2018

For Since Inception period, R3000 Index used for 1982-2001; ACWI used for 2001-2018. Public market IRR is calculated by calculating a terminal value equal to the compounded return on all cash inflows (i.e. capital calls) by the return of the public market index. Monthly returns and cash flows are used. The 8 Year return represents cash flows and all funds in the portfolio from 2011 – 2018.

## Performance by Year versus Private Equity Universe\*\*

Since inception annualized returns net of fees

	Vintage Year	ERSRI PE Portfolio	Universe Median Return
Superior Performance	1998	10.81%	8.40%
	1999	9.97%	-0.19%
	2000	14.70%	3.32%
	2001	31.60%	9.85%
	2002	17.73%	10.88%
	2003	14.18%	10.21%
Mixed Performance	2004	10.96%	7.64%
	2005	8.13%	7.39%
	2006	5.82%	7.49%
	2007	10.01%	9.19%
Only One investment	2008	8.96%	8.17%
	2009		13.39%
	2010		12.40%
Recent investments	2011	0.48%	13.75%
	2012	20.79%	13.05%
	2013	15.59%	12.81%
	2014	17.18%	14.65%
	2015	13.85%	14.53%
	2016	13.97%	10.09%

\*\* Cambridge Global Private Equity/Venture Capital Universe



## Section 2: Opportunistic Credit

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# Opportunistic Credit– Current Status (active funds only)

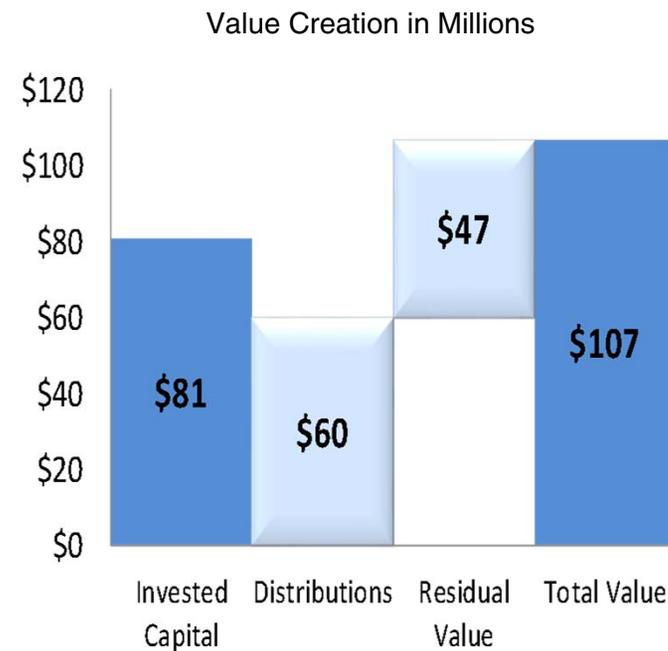
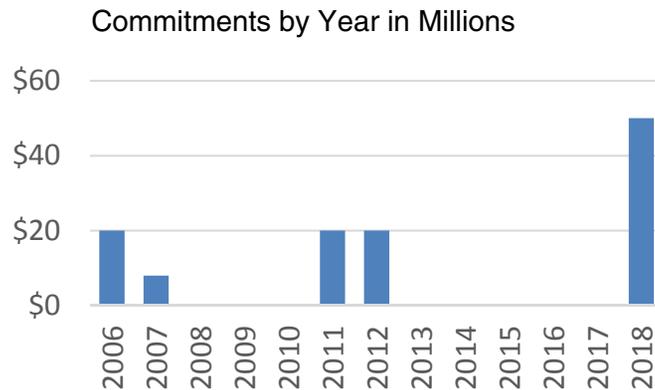
\$123 million committed to 7 funds

66% of commitments have been invested

Mostly distressed investing in US and Europe

Over 80 underlying investments

Since Inception net IRR 7.26%



# Pacing Plan: Private Opportunistic Credit

Policy target of 1.5% within Growth Class

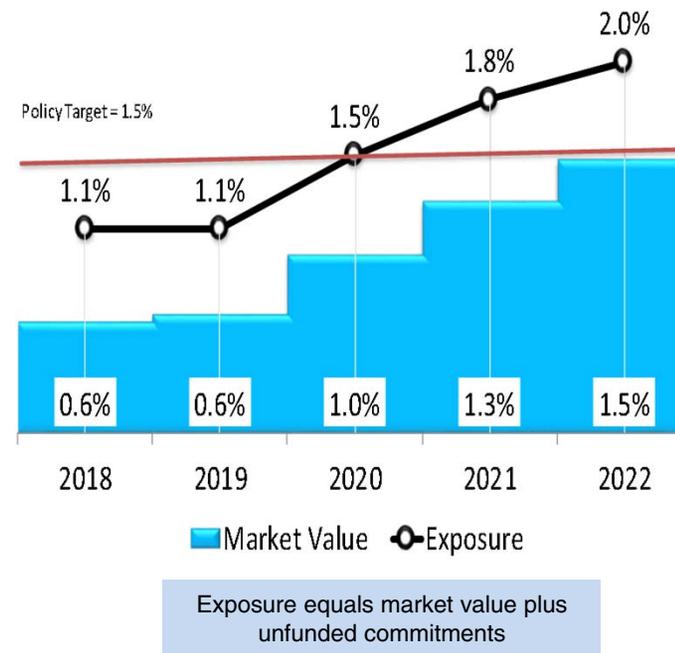
Allocation starts at 0.6% (current allocation), increasing to 1.5% by 2022

Unfunded commitments = 0.5% to 0.6% of total fund

Opportunistic and diversified pacing

- Vintage year
  - Maintain level vintage year commitments averaging \$35mm per year
- Funds
  - ~1-2 funds per year/\$20-35 mm per fund
- Potential Strategies:
  - Distressed corporate debt
  - Distressed real estate debt
  - Other non-performing debt

Pacing Plan  
Market Value and Exposure as a Percent of Total Fund



# Pacing Plan Opportunistic Private Credit

<b>ERSRI - Pacing Plan</b>	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Forecast Plan Total Assets	7,810,625	8,044,944	8,286,292	8,534,881	8,790,927
New Commitments		35,000	35,000	35,000	35,000

Private Opportunistic Credit Fair Value by Sector:

<b>Private Opportunistic Credit Total</b>	<b>46,840</b>	<b>51,715</b>	<b>78,699</b>	<b>106,854</b>	<b>128,824</b>
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POC Fair Value as % of Total Plan Assets	0.60%	0.64%	0.95%	1.25%	1.47%
POC Target Asset Allocation	1.50%	1.50%	1.50%	1.50%	1.50%

Unfunded Commitments and Fair Value	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Private Opportunistic Credit Unfunded Commitments	42,350	40,705	44,412	45,523	45,857
Unfunded Commitments + FV	89,190	92,420	123,111	152,377	174,681
Unfunded Commitments + FV as % of Assets	1.1%	1.1%	1.5%	1.8%	2.0%
Ratio of Unf Com + FV to Target Allocation	0.76x	0.77x	0.99x	1.19x	1.32x

Net Cash Flow Requirements	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Total Net Cash Flow to Private Opportunistic Credit	(262)	(21,890)	(20,402)	(11,445)

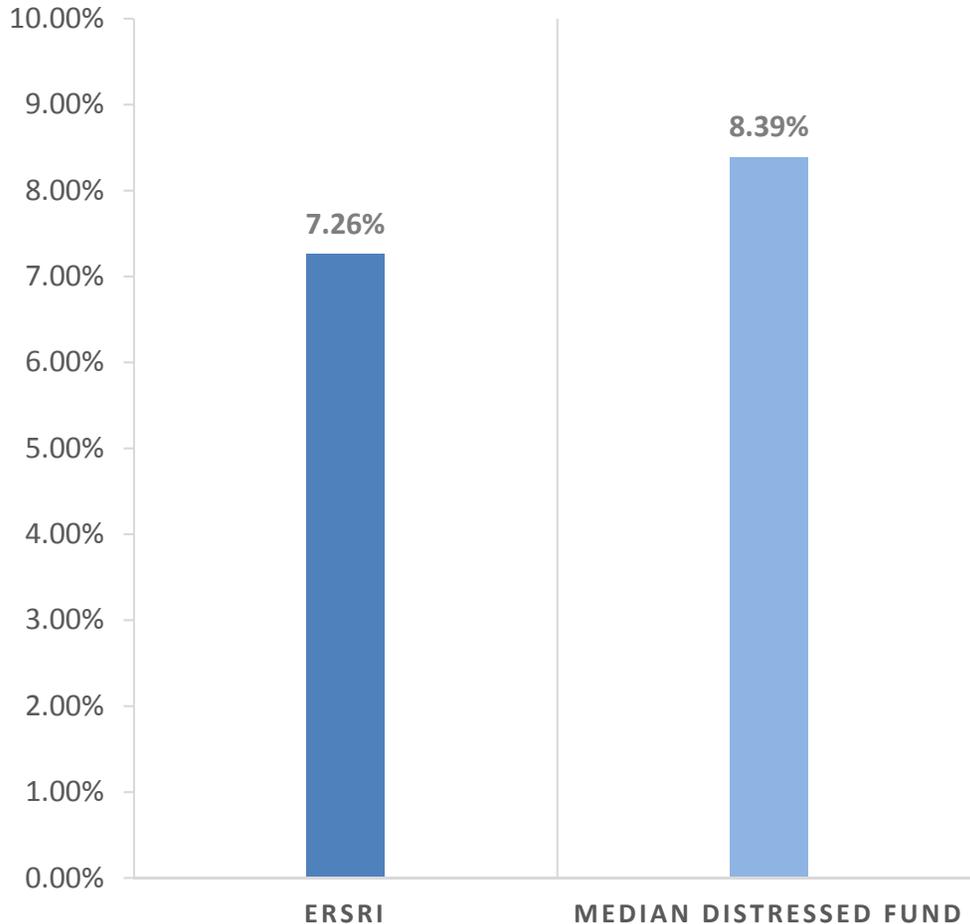
Total Plan Assets assumed to grow at 3.0%

## Cash flow Forecast

	<b>Total</b>	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Drawdowns		(36,645)	(31,294)	(33,888)	(34,666)
Distributions		36,383	9,404	13,486	23,221
Net Cash Flows		(262)	(21,890)	(20,402)	(11,445)
Amounts in \$000	Fair Market Value	51,715	78,699	106,854	128,824

# Opportunistic Credit Performance

Since Inception Net IRRs



Cambridge Associates Universe of Distressed Funds (VY 2006-2018) is used

Underperformance versus this benchmark is primarily the result of no commitments in 2013-2017 and one commitment made in 2018 that is immature.



## Section 3: Non-Core Real Estate

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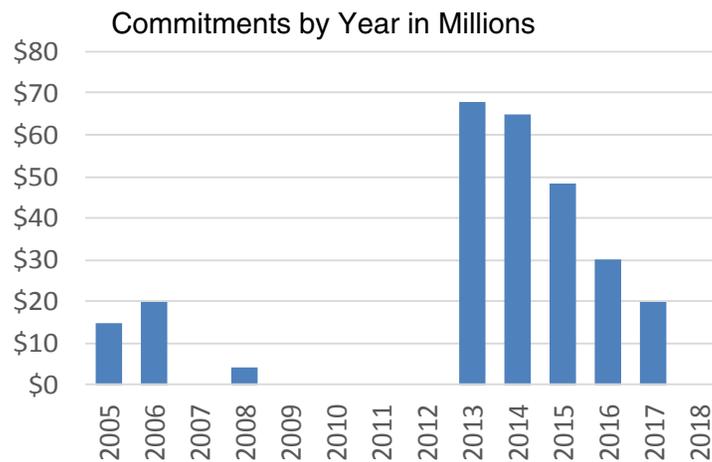
# Non-Core Real Estate– Current Status (active funds only)

\$270 million committed to 11 funds

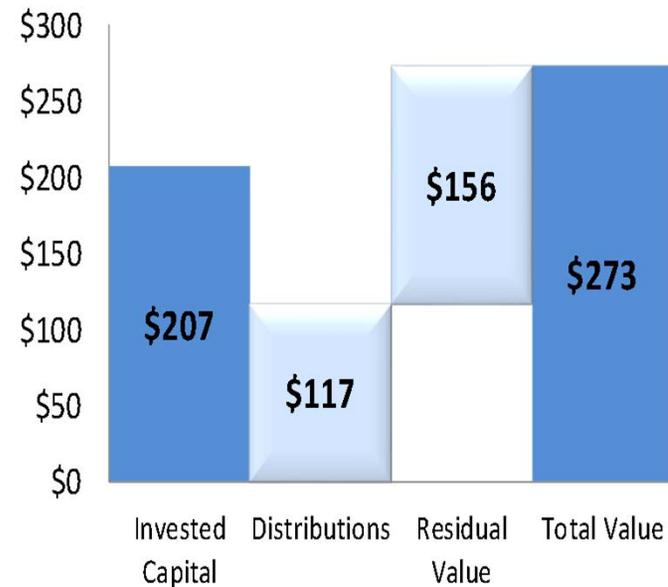
77% of commitments have been invested

Value-add and Opportunistic strategies

Including legacy funds, IRR since inception is 0.8%



Value Creation in Millions



# Pacing Plan: Non-Core Real Estate

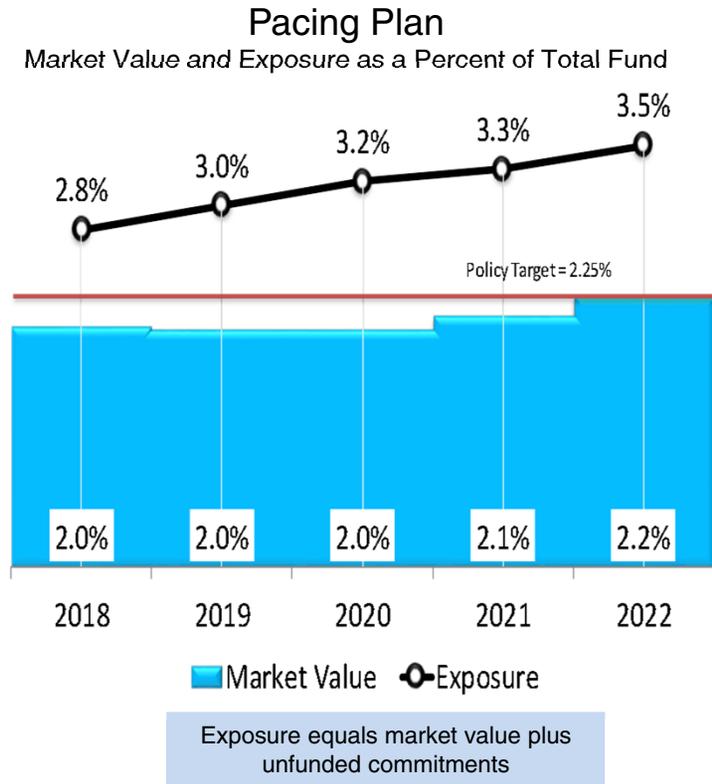
Policy target of 2.25% within Growth Class

Allocation starts at 1.99% (current allocation), increasing to 2.25% by 2022

Unfunded commitments = 0.8% to 1.2% of total fund

Opportunistic and diversified pacing

- Vintage year
  - Maintain level vintage year commitments averaging \$65 mm per year
- Funds
  - ~1-2 funds per year/\$30-65mm per fund
- Potential Strategies:
  - Distressed Real Estate
  - Value-Add Real Estate



# Non-Core Real Estate Pacing Plan

<b>ERSRI - Pacing Plan</b>	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Forecast Plan Total Assets	7,810,625	8,044,944	8,286,292	8,534,881	8,790,927
New Commitments		65,000	65,000	65,000	65,000

<b>Non-Core Real Estate at Fair Value</b>	<b>155,661</b>	<b>159,621</b>	<b>164,165</b>	<b>176,871</b>	<b>197,172</b>
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Non-Core Real Estate at Fair Value as % of Total Plan Assets	1.99%	1.98%	1.98%	2.07%	2.24%
Non-Core Real Estate Target Asset Allocation	2.25%	2.25%	2.25%	2.25%	2.25%

Unfunded Commitments and Fair Value	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Non-Core Real Estate Unfunded Commitments	63,696	85,473	100,383	107,839	111,566
Unfunded Commitments + FV	219,357	245,094	264,548	284,709	308,738
Unfunded Commitments + FV as % of Assets	2.8%	3.0%	3.2%	3.3%	3.5%
Ratio of Unf Com + FV to Target Allocation	1.25x	1.35x	1.42x	1.48x	1.56x

Net Cash Flow Requirements	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Total Net Cash Flow to Non-Core Real Estate	9,349	9,103	1,330	(5,179)

Annual Commitments by Strategy	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Total Annual Commitments to Non-Core Real Estate	65,000	65,000	65,000	65,000

Total Plan Assets assumed to grow at 3.0%

## Cash flow Forecast

<b>Total</b>	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Drawdowns	(43,223)	(50,090)	(57,545)	(61,272)
Distributions	52,572	59,193	58,875	56,093
Net Cash Flows	9,349	9,103	1,330	(5,179)
Fair Market Value	159,621	164,165	176,871	197,172

Amounts in \$000



## Section 4: Private Credit

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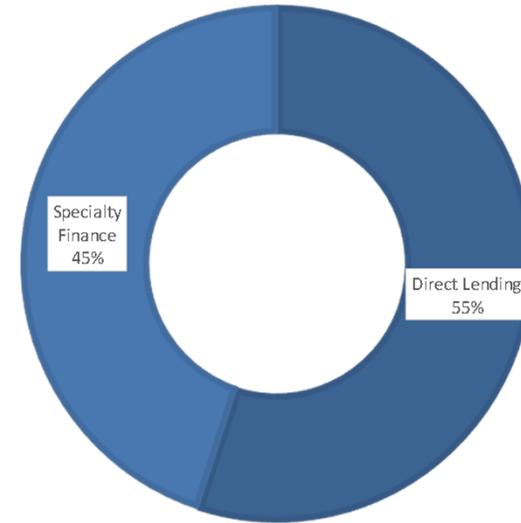
# Private Credit – Current Status (active funds only)

\$205 million committed to 6 funds

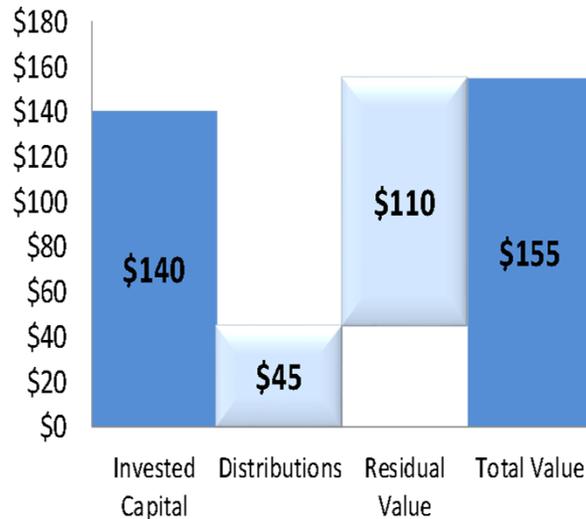
69% of commitments have been invested

Direct lending and specialty finance

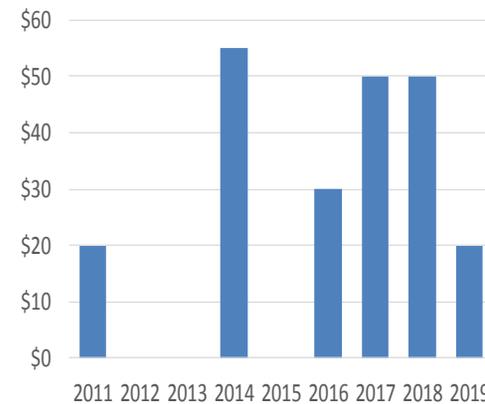
Strategy Diversification by Exposure



Value Creation in Millions



Commitments by Year in Millions



# Pacing Plan: Private Credit

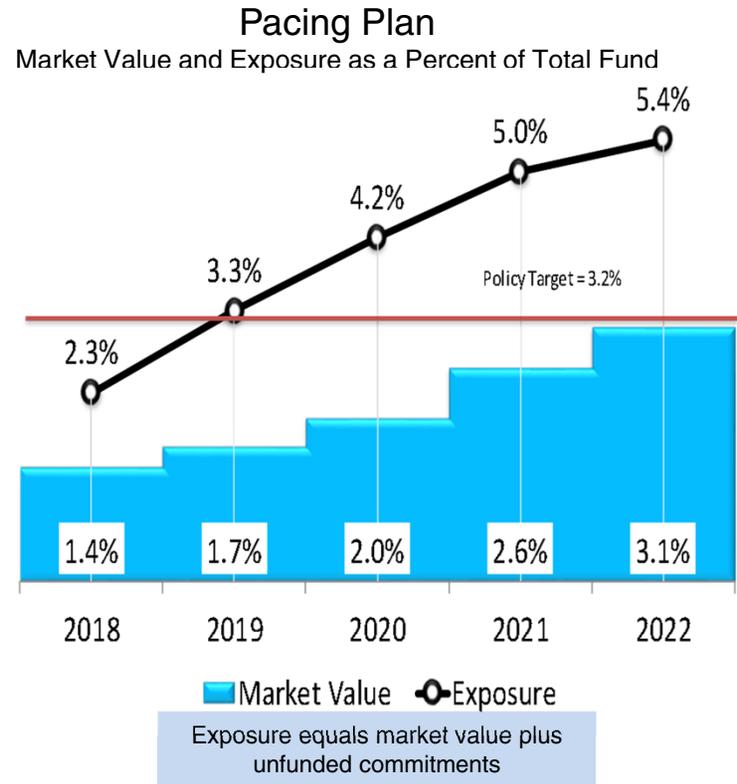
Policy target of 3.2% within Income Class

Allocation starts at 1.4% (current allocation), increasing to 3.2% by 2022

Unfunded commitments = 1.1% to 2.4% of total fund

Opportunistic and diversified pacing

- Vintage year
  - Maintain level vintage year commitments averaging \$130 mm per year
- Funds
  - ~2-3 funds per year/\$30-70mm per fund
- Potential Strategies:
  - Direct lending
  - Real estate debt
  - IP Royalties
  - Insurance linked
  - Other



# Private Credit Pacing Plan

<b>ERSRI - Pacing Plan</b>	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Forecast Plan Total Assets	7,810,625	8,044,944	8,286,292	8,534,881	8,790,927
New Commitments		130,000	130,000	130,000	130,000

Private Credit Fair Value by Sector:

<b>Private Credit at Fair Value</b>	<b>109,718</b>	<b>130,604</b>	<b>169,304</b>	<b>223,855</b>	<b>270,411</b>
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Private Credit Fair Value as % of Total Plan Assets	1.4%	1.6%	2.0%	2.6%	3.1%
Private Credit Target Asset Allocation	3.2%	3.2%	3.2%	3.2%	3.2%

Unfunded Commitments and Fair Value	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Private Credit Unfunded Commitments	67,547	137,519	182,083	199,908	207,038
Unfunded Commitments + FV	177,266	268,122	351,387	423,763	477,450
Unfunded Commitments + FV as % of Assets	2.3%	3.3%	4.2%	5.0%	5.4%
Ratio of Unf Com + FV to Target Allocation	0.71x	1.04x	1.33x	1.55x	1.70x

Net Cash Flow Requirements	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Total Net Cash Flow to Private Credit	(12,876)	(29,167)	(42,191)	(30,215)

Annual Commitments by Strategy	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Total Annual Commitments to Private Credit	130,000	130,000	130,000	130,000

Total Plan Assets assumed to grow at 3.0%

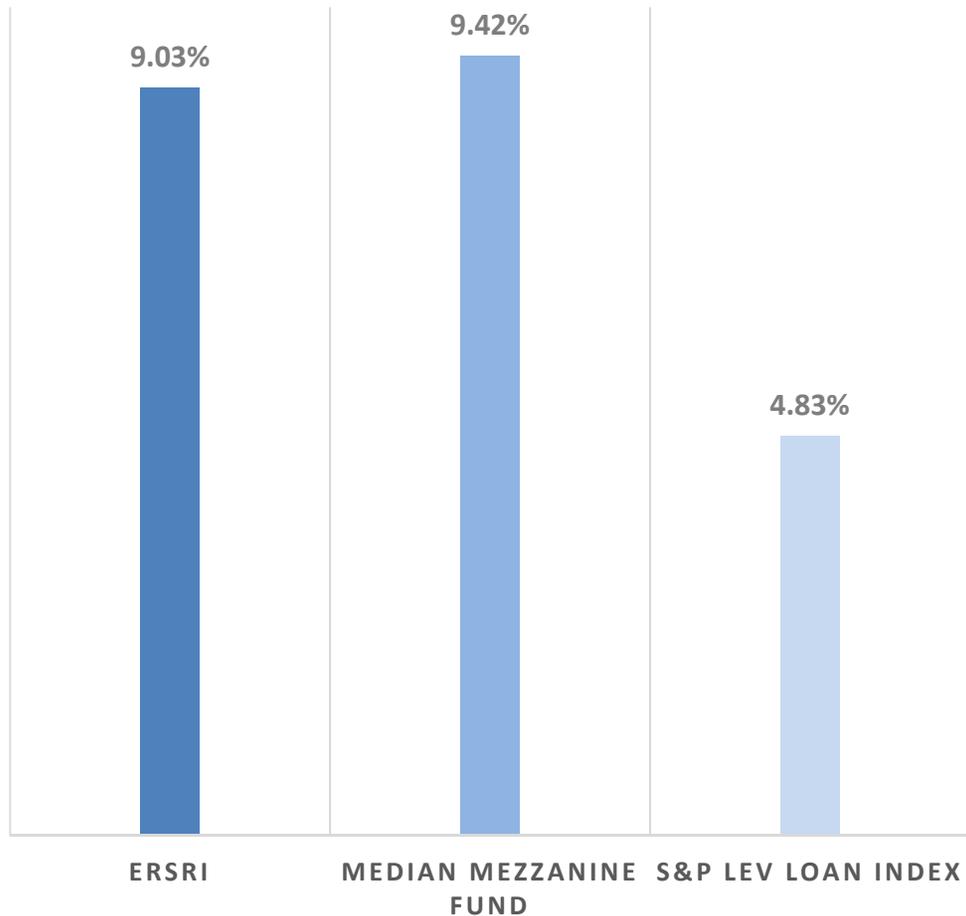
Cash flow Forecast

	<b>Total</b>	12/31/2019	12/31/2020	12/31/2021	12/31/2022
	Drawdowns	(60,028)	(85,436)	(112,175)	(122,870)
	Distributions	47,153	56,269	69,983	92,655
	Net Cash Flows	(12,876)	(29,167)	(42,191)	(30,215)
Amounts in \$000	Fair Market Value	130,604	169,304	223,855	270,411

# Private Credit Performance

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Since Inception Net IRRs



No active universe of similar strategies is available

Cambridge Associates Universe of Mezzanine Funds (VY 2011-2018) is used. However, portfolio is lower risk (more senior credits)

Public benchmark is S&P Leverage Loan Index



## Section 5: Infrastructure

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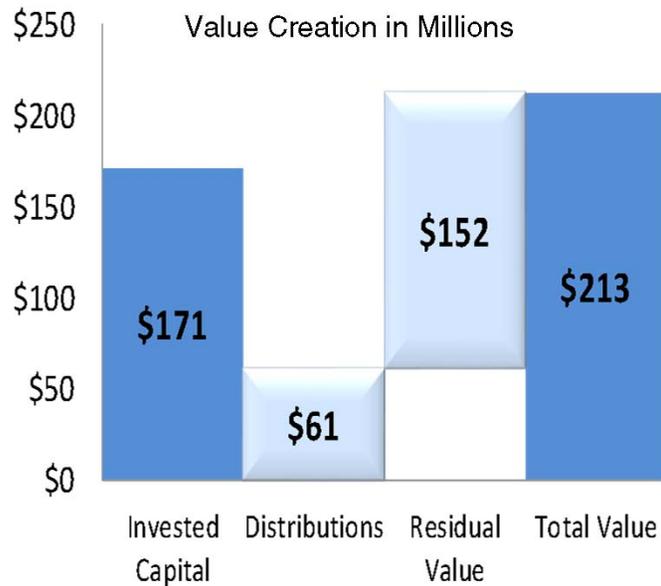
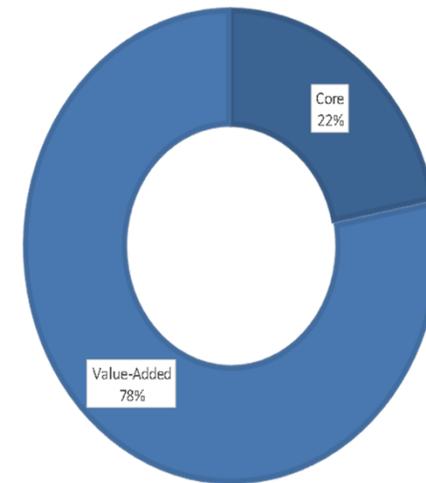
# Infrastructure – Current Status

\$228 million committed to 6 funds

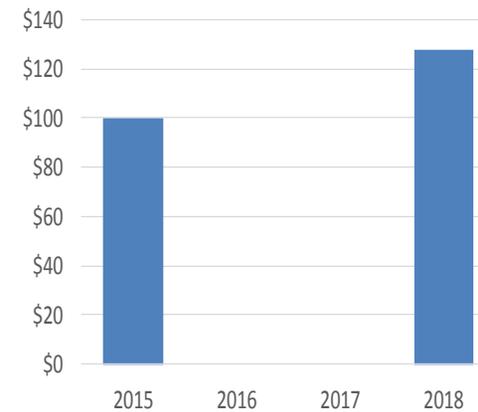
75% of commitments have been invested

Core and value-added strategies

Strategy Diversification by Exposure



Commitments by Year in Millions



# Pacing Plan: Private Infrastructure

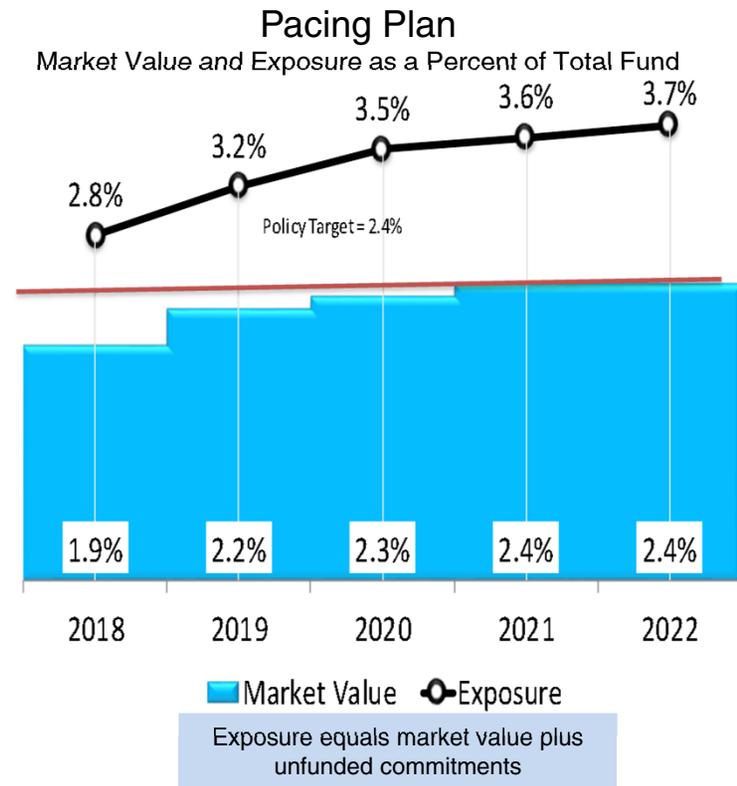
Policy target of 2.4% within Income Class

Allocation starts at 1.9% (current allocation), increasing to 2.4% by 2022

Unfunded commitments = 0.9% to 1.3% of total fund

Opportunistic and diversified pacing

- Vintage year
  - Maintain level vintage year commitments averaging \$50 mm per year
- Funds
  - ~1-2 funds per year/\$20-50mm per fund
- Potential Strategies:
  - Core infrastructure
  - Value –add
  - International



# Private Infrastructure Pacing Plan

<b>ERSRI - Pacing Plan</b>	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Forecast Plan Total Assets	7,810,625	8,044,944	8,286,292	8,534,881	8,790,927
New Commitments		50,000	50,000	50,000	50,000

## Private Infrastructure Fair Value by Sector:

<b>Private Infrastructure at Fair Value</b>	151,630	174,274	188,376	201,141	210,938
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Private Infra Fair Value as % of Total Plan Assets	1.9%	2.2%	2.3%	2.4%	2.4%
Private Infra Target Asset Allocation	2.4%	2.4%	2.4%	2.4%	2.4%

Unfunded Commitments and Fair Value	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Private Infra Unfunded Commitments	69,849	84,667	99,754	108,052	112,616
Unfunded Commitments + FV	221,479	258,941	288,130	309,194	323,554
Unfunded Commitments + FV as % of Assets	2.8%	3.2%	3.5%	3.6%	3.7%
Ratio of Unf Com + FV to Target Allocation	1.18x	1.34x	1.45x	1.51x	1.53x

Net Cash Flow Requirements	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Total Net Cash Flow to Private Infrastructure	(11,272)	(1,031)	1,363	5,289

Annual Commitments by Strategy	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Total Annual Commitments to Private Infrastructure	50,000	50,000	50,000	50,000

Total Plan Assets assumed to grow at 3.0%

## Cash flow Forecast

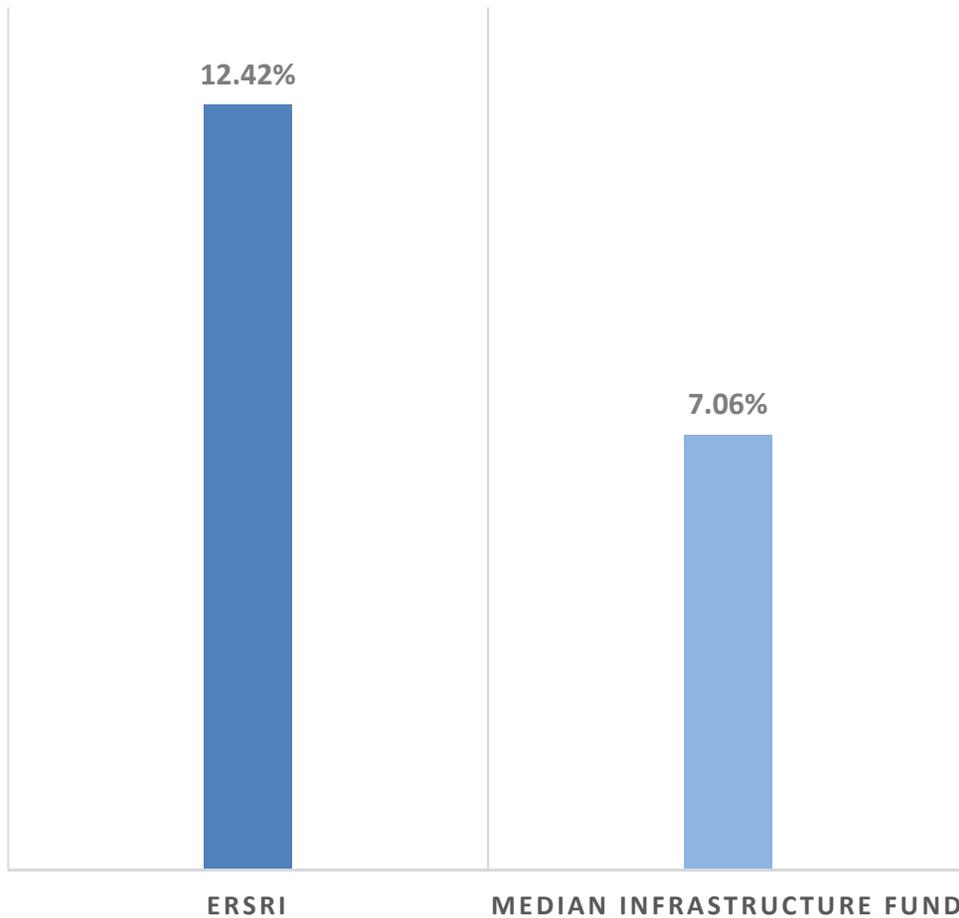
Total	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Drawdowns	(35,182)	(34,913)	(41,702)	(45,436)
Distributions	23,910	33,882	43,065	50,725
Net Cash Flows	(11,272)	(1,031)	1,363	5,289
Fair Market Value	174,274	188,376	201,141	210,938

Amounts in \$000

# Infrastructure Performance

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Since Inception Net IRRs



Cambridge Associates  
Universe of  
Infrastructure Funds  
(VY 2011-2018) is used

CLIFFWATER<sup>LIC</sup>

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Appendix

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## ERSRI Target Asset Allocation

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ERSRI Asset Allocation Tracking

Functional Bucket	Aggregate Asset Class	Aggregate Allocation Weight	Asset Class	Strategic Benchmark Weight	(a) Target Asset Allocation	(b) Actual exposure as of 01/31/19	(b) - (a)
GROWTH	Global Equity	40.0%	USEquity	21.8%	21.8%	25.1%	3.3%
			International Developed Equity	13.5%	13.5%	14.7%	1.2%
			EMEquity	4.7%	4.7%	5.3%	0.6%
	Private Growth	15.0%	PE	11.0%	11.25%	6.5%	-4.7%
			Non-core RE	2.5%	2.25%	1.9%	-0.3%
			Opp Private Credit	1.5%	1.5%	0.5%	-1.0%
INCOME	Income	8.0%	HYInfra	1.5%	1.0%	1.9%	0.9%
			REITs	0.0%	1.0%	0.0%	-1.0%
			Liquid Credit	3.5%	2.8%	3.9%	1.1%
			Private Credit	3.0%	3.2%	1.4%	-1.8%
			Treasury Duration	4.0%	4.0%	3.9%	-0.1%
STABILITY	CPC	8.0%	Systematic Trend	4.0%	4.0%	3.6%	-0.4%
			Core RE	4.0%	3.6%	4.4%	0.8%
	Inflation Protection	8.0%	Private Infra	2.0%	2.4%	1.8%	-0.6%
			TIPS	1.0%	1.0%	2.5%	1.5%
			Nat' Resources	1.0%	1.0%	0.0%	-1.0%
	Volatility Protection	21.0%	IG Fixed Income	11.5%	11.5%	11.4%	-0.1%
			Absolute Return	6.5%	6.5%	6.9%	0.4%
			Strategic Cash	3.0%	3.0%	3.4%	0.4%
OTHER	Short-term Tactical	-	Short-Term Cash	-	-	0.6%	0.6%
		-	Russell Overlay	-	-	0.4%	0.4%
<b>TOTAL</b>	<b>Total</b>	<b>100.0%</b>		<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>

CLIFFWATER<sup>LIC</sup>

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Secondary Investing

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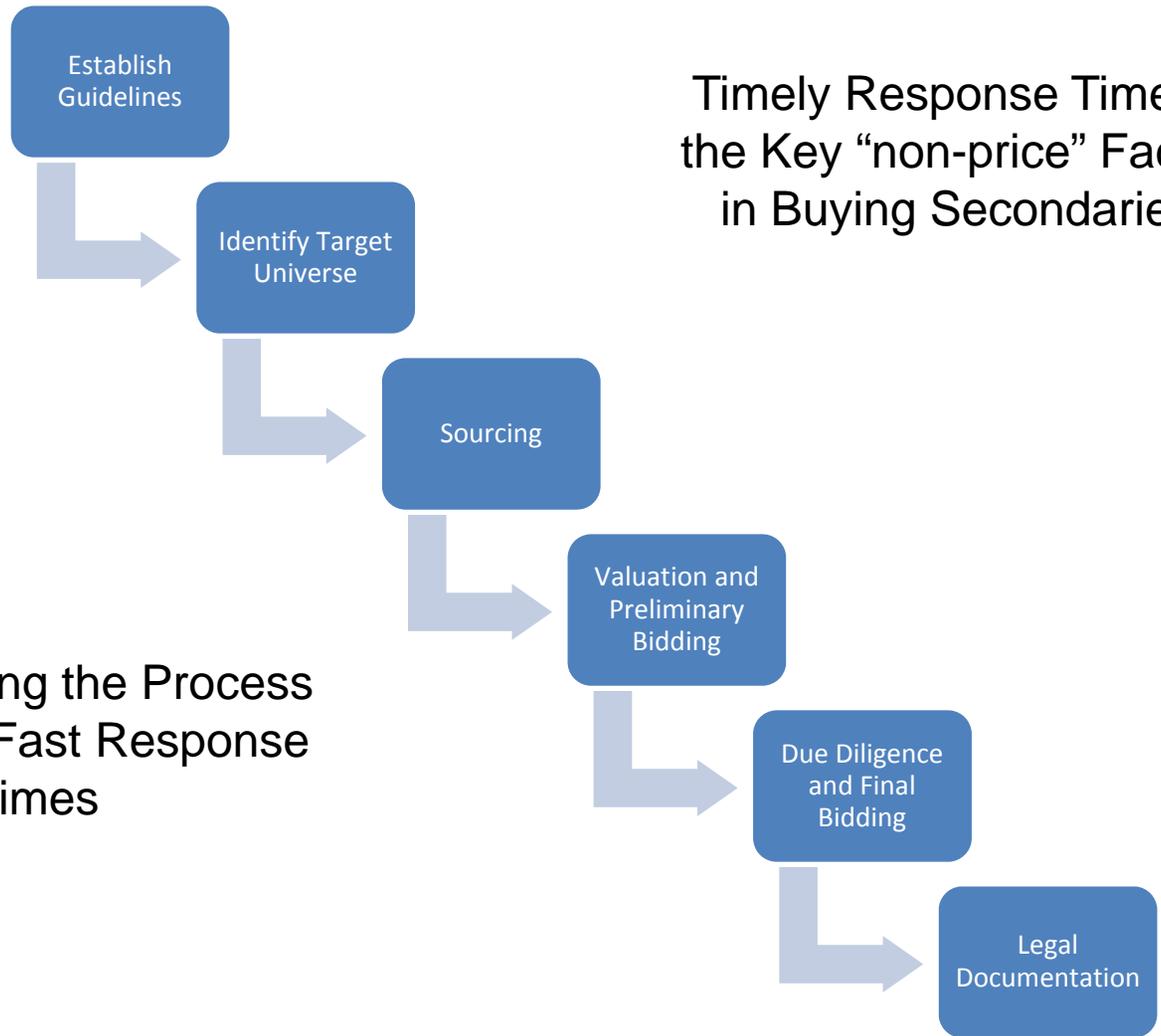
# Secondary Investing Objectives and Strategy

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- **Three objectives for secondaries:**
  1. Access to “top-tier” general partners
  2. Deployment of capital and J-curve reduction
  3. Attractive returns
  
- **Investment strategy:**
  - Proactive sourcing of secondary opportunities
  - Sourcing secondaries overlaps sourcing primaries
  - Disciplined valuation
  - Opportunistic capital deployment

# Investment Process

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Timely Response Time is the Key “non-price” Factor in Buying Secondaries

Standardizing the Process Facilitates Fast Response Times

# Investment Process

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Identify Target Universe

Target Universe

Access Secondaries  
Funds of Top Tier  
Managers

Exposure Secondaries  
Funds Currently in the  
Portfolio

Opportunistic Secondaries  
High Return/Low Risk  
Secondaries



## Private Assets Market Outlook

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# Cliffwater Private Assets Quarterly Outlook – Q1 2019

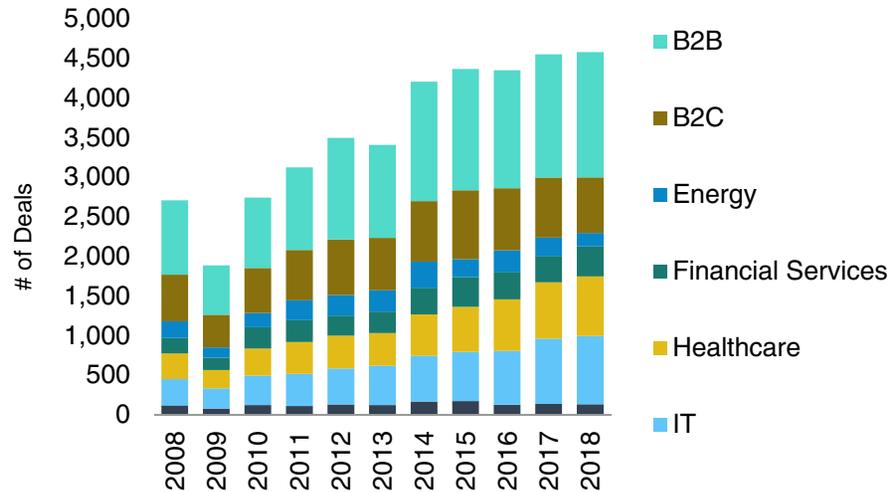
U.S. Large Buyout	Highly competitive market across all sectors has led to increased use of debt and continued high prices. Firms with the ability to complete more complicated transactions or provide creative solutions are best positioned in the current environment.	Underweight
U.S. Mid/Small Buyout	Deal flow remains strong as company owners grow increasingly confident about selling into the current market. More options on exit than the larger buyout market.	Neutral
Distressed	Recent repricing in the secondary market and other signs in the credit markets reinforce a potential distressed cycle on horizon, though timing and magnitude remain uncertain. Current opportunities include European bank deleveraging and funds focused on smaller markets.	Neutral
Private Debt	Despite volatility in the broader credit markets, private debt continues to provide investors with consistent income at attractive yields relative to other income oriented investments. A recent decline in private debt fundraising is positive for lenders.	Overweight
Venture	Record levels of capital continue to be invested in a smaller number of venture-backed companies. Strategic and sovereign wealth investors continue to aggressively invest capital, pressuring valuations and extending the length of time that companies stay private.	Neutral
Europe	The European market has become more competitive as private equity managers grow more accepting of the economic and political environments across the region. Managers with flexible mandates, strong origination, discipline, and true value creation capabilities have an edge.	Neutral
Asia	Trade war concerns continue to impact the public exit markets, as a significant portion of Internet-related companies that have listed since 2017 have subsequently traded down from their IPO price. Venture capital activity remains consistent, however, and USD-funds are benefitting from a reduction in competition from RMB funds.	Neutral
Latin America	Exit activity remains limited following a challenging 2018 in which LatAm currencies depreciated significantly relative to the USD. Fundraising activity remains muted and entry valuations are attractive on a comparative basis.	Neutral
Energy	Large cap E&P transactions remain subdued and negatively affected by declining commodity prices. Small cap transactions offer better return potential and are a focus of small upstream funds. Opportunities in midstream infrastructure remain and offer a lower exposure to commodity price volatility.	Neutral
Infrastructure	Fundraising remains highly active with mega funds and multiple large-sized funds being raised. Fund investment pipelines primarily consist of energy and transportation assets. Many funds are now targeting telecommunication infrastructure including the build out of fiber optic to residential users and data warehousing.	Neutral
Natural Resources	Agriculture markets experienced positive change with the re-writing of NAFTA though the tariffs enacted by China have partially offset those gains. Timberland continues to be negatively impacted by low demand and low prices. The mining sector will be highly affected by slowing growth in China.	Neutral
Real Estate – Equity	Fully priced environment has created a challenging buying market. Widely available debt has promoted asset refinancing to generate proceeds for stabilized assets.	Neutral
Real Estate – Debt	Increased lending activity across traditional banks and debt funds have created a competitive market. Lenders have reacted to increased competition through more flexible terms and covenants.	Neutral

The information on this page contains Cliffwater's current views, projections regarding future events, and forecasts regarding the strategies described herein. There is no assurance that such events or forecasts will be achieved, and may be significantly different from that shown here.

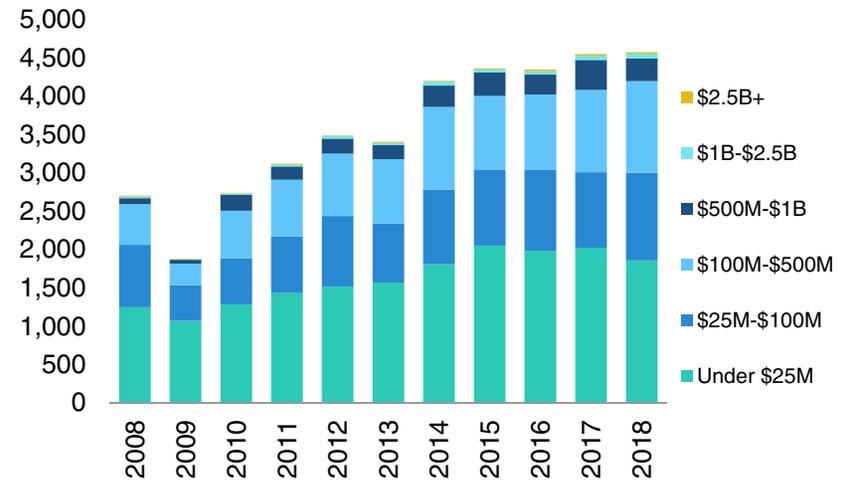


# U.S. Private Equity Buyout Trends

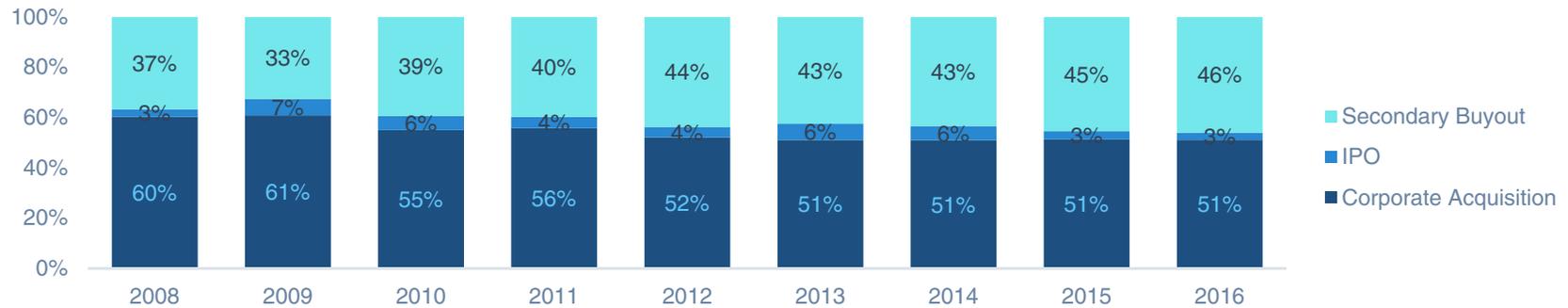
U.S. Deal Activity (#) by Sector<sup>1</sup>  
January 1, 2008 to December 31, 2018



U.S. Activity (#) by Size of Deal<sup>2</sup>  
January 1, 2008 to December 31, 2018



U.S. PE-Backed Exits (#) by Type & Year<sup>3</sup>  
January 1, 2008 to December 31, 2018



<sup>1</sup> Source: PitchBook Data Inc.

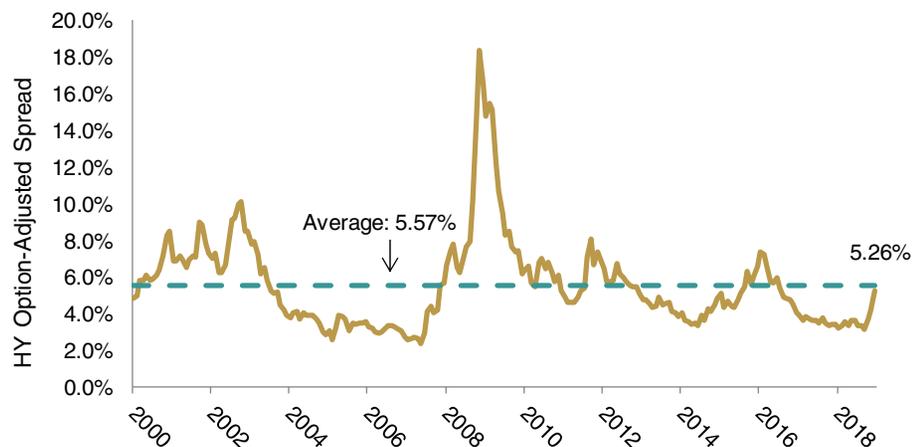
<sup>2</sup> Source: PitchBook Data Inc.

<sup>3</sup> Source: PitchBook Data Inc.

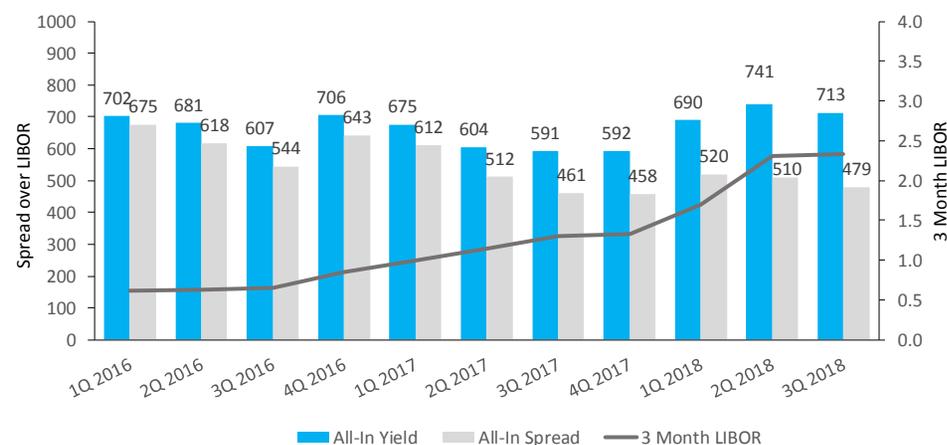
# Recent secondary market volatility indicates uncertainty ahead

## Private debt performance continues to be strong

Barclays High Yield Option-Adjusted Spread Through December 2018<sup>1</sup>



Middle Market Loan Spreads, January 2016 to September 2018<sup>2</sup>



### Distressed Debt and Opportunistic Funds

AnaCap Credit Opps Fund IV\*

2Q 2019 final close

- Invests in non-performing and performing European loan portfolios
- Long track record and focus on smaller, less competitive markets

Clearlake Opportunities Partners II

2Q 2019 final close

- Non-control stressed debt and structured equity investments
- High quality platform and upside potential in most investments

### Direct Lending Funds

Silver Point Specialty Credit II

2Q 2019 first close

- Directly originate loans to lower middle market non-sponsor businesses
- Niche strategy focused on less competitive situations

TCP Direct Lending IX

2Q 2019 first close

- Direct lending to non-sponsor middle market businesses
- Sector focused team with long track record and strong performance

\*Notes Cliffwater approved fund.

<sup>1</sup> Source: Bloomberg

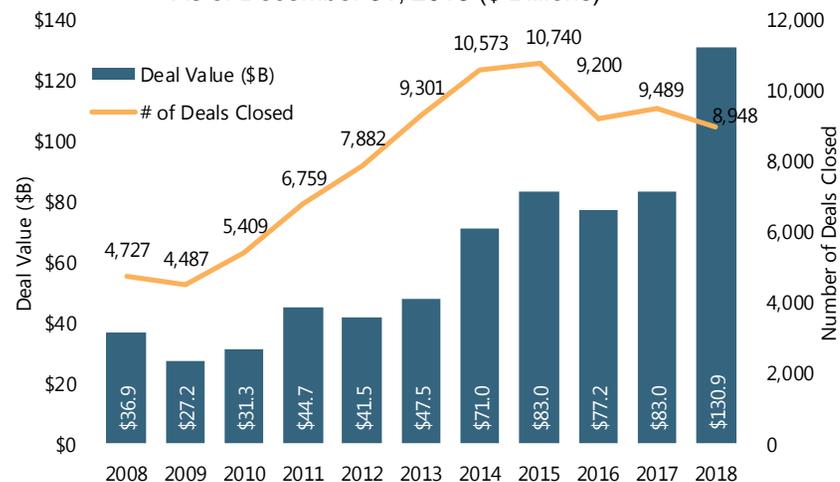
<sup>2</sup> Source: S&P Leveraged Buyout Review 3Q 2018, Institutional Loans backing Middle-Market LBOs with less than \$50 million of EBITDA.

# Record Levels of Venture Capital Investing

U.S. VC Fundraising by Year  
As of December 31, 2018 (\$ Billions)



U.S. Venture Capital Investments  
As of December 31, 2018 (\$ Billions)



## Diversified Technology Funds

Andreessen Horowitz V 2Q 2019 final close	<ul style="list-style-type: none"> <li>Multi-stage investments in technology investments</li> <li>High profile investment team and large group of operating partners</li> </ul>
NEA 17 3Q 2019 final close	<ul style="list-style-type: none"> <li>Multi-stage investments in technology and life sciences</li> <li>Established team and brand recognition, deep performance</li> </ul>
Spark Capital VI* Spark Growth III* 2Q 2019 final close	<ul style="list-style-type: none"> <li>VC investments in technology companies, with a primary focus on consumer-facing businesses</li> <li>Dedicated growth-focused and early-stage focus</li> </ul>

## Sector Focused Funds

Data Collective V* 2Q 2019 final close	<ul style="list-style-type: none"> <li>Seed and early stage investments in deep science</li> <li>Strong sector expertise and research capabilities</li> <li>Leading brand in focused sector</li> </ul>
Lux Ventures VI 3Q 2019 final close	<ul style="list-style-type: none"> <li>Early-stage investments in deep-tech companies including AI, next-gen genomics, software companies, autonomous vehicle tech, and robotics</li> <li>Differentiated and long-standing sector focus</li> </ul>
The Column Group IV 3Q 2019 final close	<ul style="list-style-type: none"> <li>Focused on formation of early stage biotech companies based on firm research and network</li> <li>Strong scientific and operating team led by former Chief Scientist at Genentech</li> </ul>

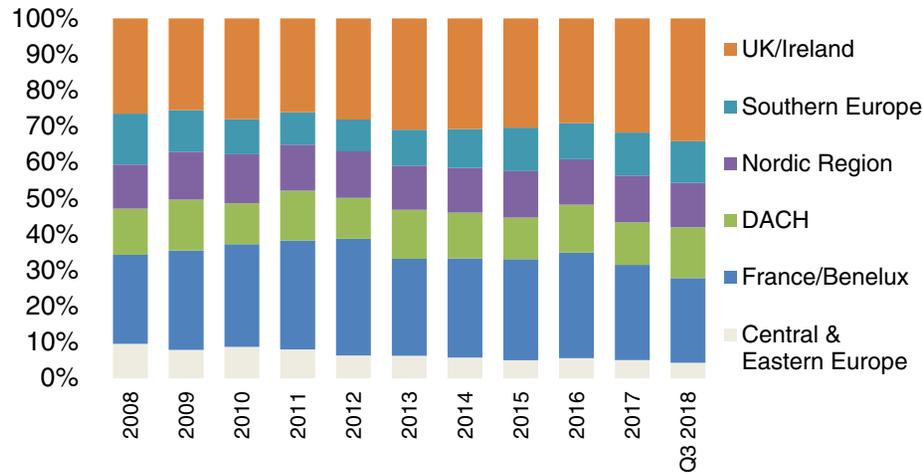
\*Notes Cliffwater approved fund.

<sup>1</sup> Source: PitchBook Data Inc.

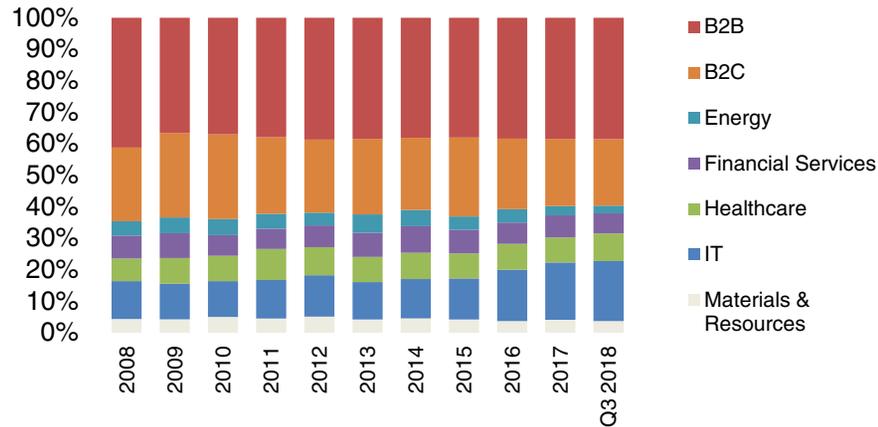
<sup>2</sup> Source: PitchBook Data Inc.

# European Market Trends and Opportunities

European Deal Activity (#) by Region<sup>1</sup>  
January 1, 2008 to September 30, 2018



European Deal Activity (#) by Sector<sup>2</sup>  
January 1, 2008 to September 30, 2018



## Mix of Opportunities Across Europe

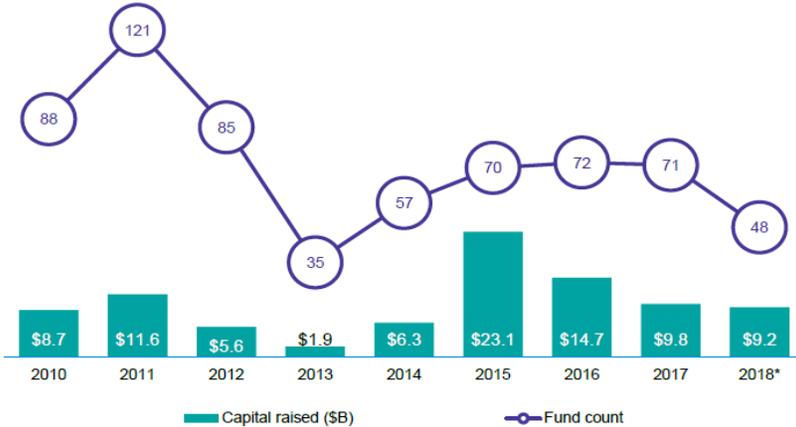
Advent GPE IX 2Q 2019 final close	<ul style="list-style-type: none"> <li>Buyouts of large companies across Western Europe, the U.S., and opportunistically in Asia</li> <li>Diversified sector approach investing in companies with enterprise values to €3 billion</li> </ul>
Altor V 2Q 2019 first close	<ul style="list-style-type: none"> <li>Invests in middle market companies primarily in the Nordic region</li> <li>Operationally-oriented, long-term approach to value creation</li> </ul>
EMH II 2Q 2019 final close	<ul style="list-style-type: none"> <li>Founded by brother entrepreneurs, seeks growth equity investments across the DACH region</li> </ul>
OpCapita III 2Q 2019 first close	<ul style="list-style-type: none"> <li>Targets scalable, underperforming companies across Europe with up to €1.0 billion revenue</li> <li>Consumer, retail, and leisure sectors</li> </ul>
Synova Capital IV 2Q 2019 final close	<ul style="list-style-type: none"> <li>Lower middle market growth equity investments across the UK</li> <li>Seek entrepreneur or family owned businesses in off-market processes</li> </ul>
Wise Equity V Q3 2019 first close	<ul style="list-style-type: none"> <li>Targets family-owned, lower middle market companies across Northern Italy</li> <li>Control investor across multiple sectors</li> </ul>

<sup>1</sup> Source: PitchBook Data Inc.

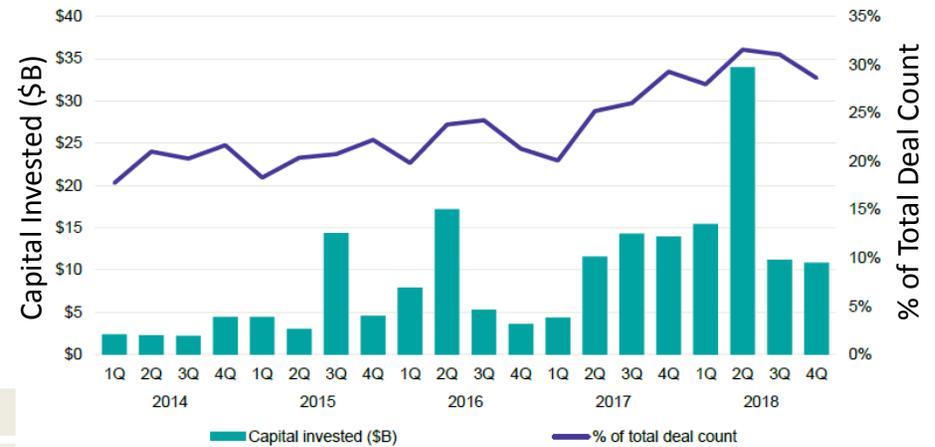
<sup>2</sup> Source: PitchBook Data Inc.

# Asia: Attractive Venture Capital Market Dynamics

Asia Venture Fundraising (January 1<sup>st</sup>, 2010 – December 31, 2018)<sup>1</sup>



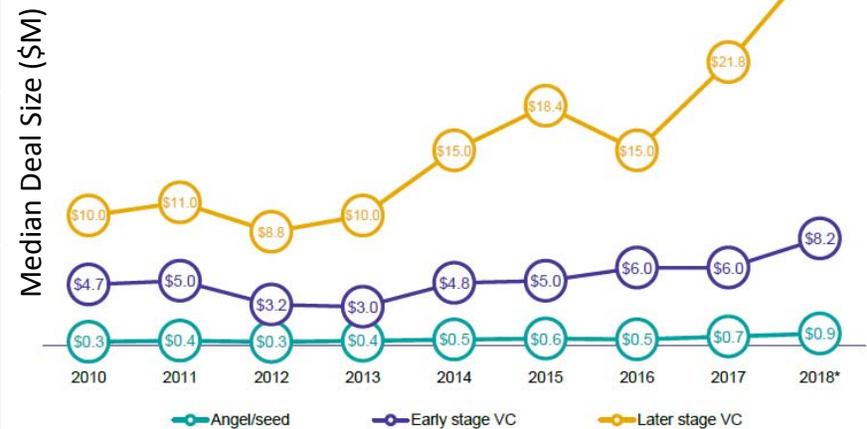
Asia Corporate VC Participation (January 1<sup>st</sup>, 2014 – December 31, 2018)<sup>1</sup>



## China Venture Capital Funds

Joy Capital Opportunity Fund 3Q Final Close & Joy Capital III 4Q final Close	<ul style="list-style-type: none"> <li>Seed, series A, and later investments in consumer technology and B2B companies in China</li> <li>Outsized Fund I performance and liquidity and strong Fund II and Opportunity Fund write-ups</li> <li>Visible &amp; differentiated pipeline for the Opp. Fund</li> </ul>
Sky9 Fund IV 2Q 2019 final close	<ul style="list-style-type: none"> <li>Early and growth stage investments in technology companies based in China</li> <li>Strong prior track record at Lightspeed and early momentum of Fund III</li> </ul>
Source Code Fund IV & Growth II 2Q 2019 final close	<ul style="list-style-type: none"> <li>Early and growth stage investments in technology companies based in China</li> <li>Differentiated network of “Code Class” strategic LPs</li> <li>Significant value-add team</li> </ul>

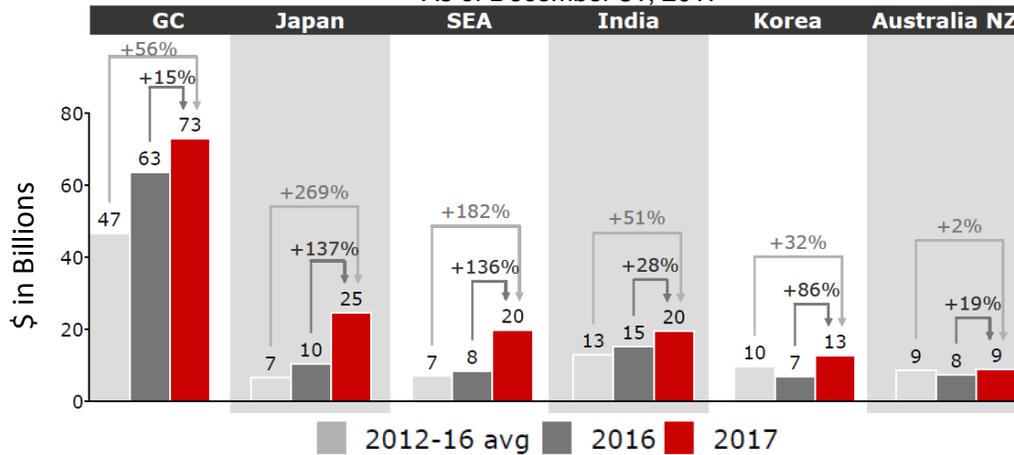
Median Deal Size (\$M), by Stage (January 1<sup>st</sup>, 2010 – December 31, 2018)<sup>1</sup>



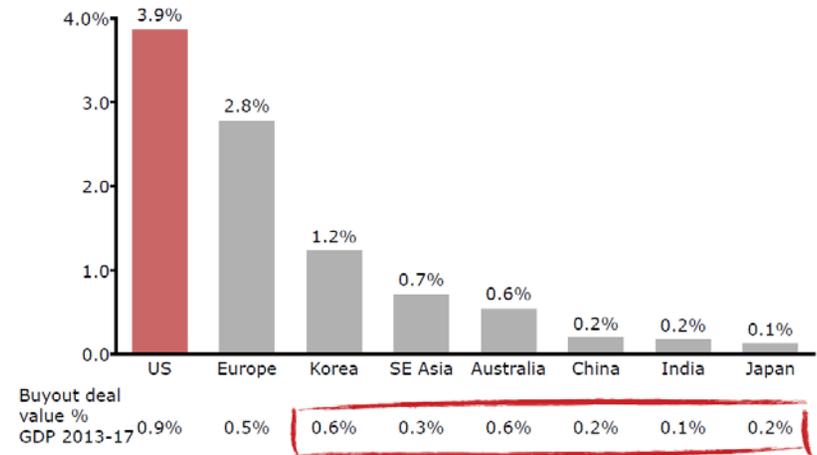
<sup>1</sup> Source: Venture Pulse, Q4'18, Global Analysis of Venture Funding, KPMG Enterprise. Data provided by PitchBook, January 15, 2019.

# Asia Buyouts / GE: Consistent Growth in Opportunities, Focus on High-Growth Sectors

Investment Activity Evolution, by Region / Country  
As of December 31, 2017<sup>1</sup>



PE Market Penetration  
(% of Companies with \$500 m - \$5B revenue \* PE Owned)<sup>2</sup>

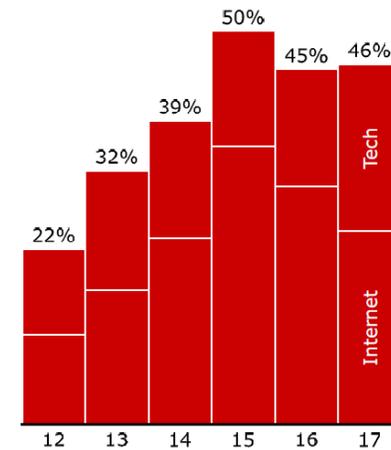


Buyout deal value % GDP 2013-17: 0.9% (US), 0.5% (Europe), 0.6% (Korea), 0.3% (SE Asia), 0.6% (Australia), 0.2% (China), 0.1% (India), 0.2% (Japan)

## Buyout Funds

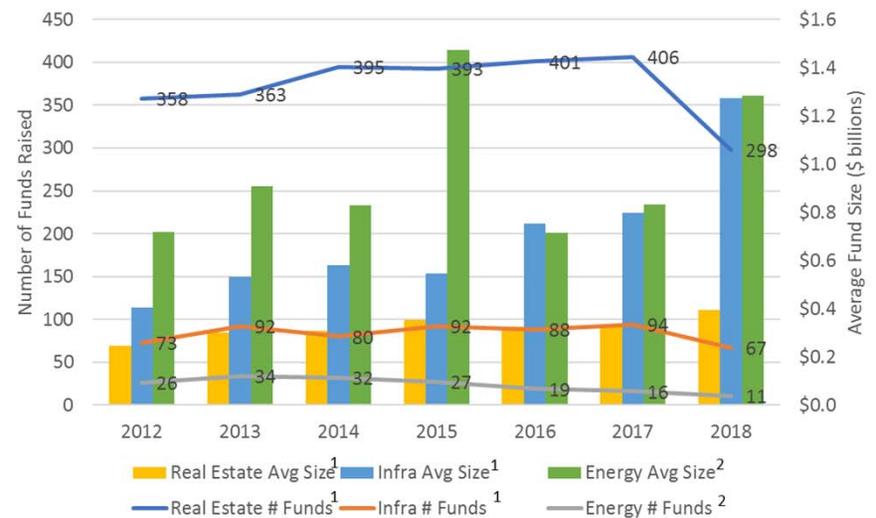
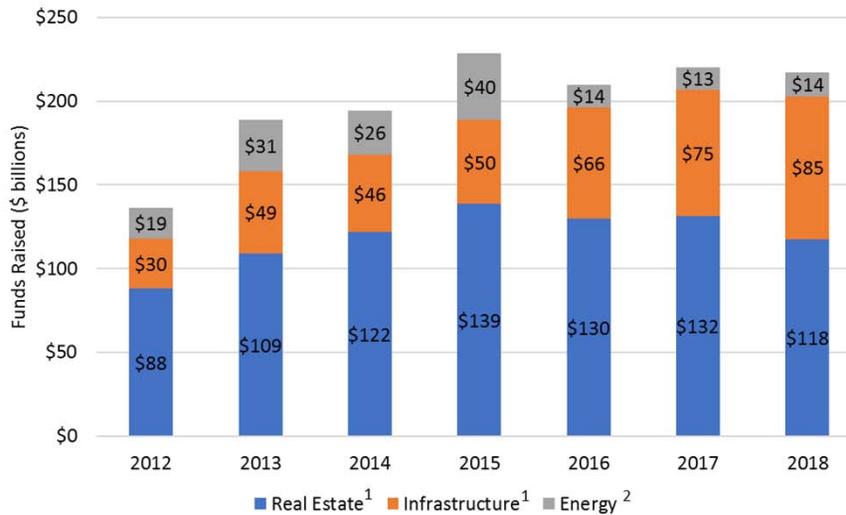
CITIC Capital China IV 1Q 2019 final close	<ul style="list-style-type: none"> <li>Control buyout investments in Chinese companies</li> <li>Focus on privately-owned and state-owned enterprises</li> <li>Strong Fund I and Fund II outperformance to peers and meaningful liquidity</li> </ul>
Warburg Pincus China Fund II 2Q 2019 first close	<ul style="list-style-type: none"> <li>Large-cap growth equity and control investments in Greater China and Southeast Asia</li> <li>Focus on technology, healthcare, real estate, and services companies</li> <li>Strong performance and meaningful liquidity</li> </ul>
Quadria Capital Fund II 1Q 2019 first close	<ul style="list-style-type: none"> <li>Control and growth equity investments in healthcare companies based in Southeast Asia and India</li> <li>Differentiated sector-focused strategy and team</li> </ul>

Technology / Internet Share of Total Deal Volume<sup>3</sup>



43 | Source: "2018 Asia Pacific private equity investment opportunity", March 2018, Bain & Company.

# Infra Fund Raising Gaining on Real Estate, Energy Declining



Infrastructure Funds	
Brookfield Infrastructure IV <i>Q2 2019 first close</i>	<ul style="list-style-type: none"> <li>Global Core+/Value Add strategy. Large asset management team globally</li> <li>GP is meeting its stated performance targets for prior funds</li> </ul>
GIP Infra IV* <i>Q4 2018 first close</i>	<ul style="list-style-type: none"> <li>Global Core+/Value Add strategy. Operating partner group has added significant value</li> <li>Strong realizations from prior funds</li> </ul>
Star America II <i>Q1 2019 first close</i>	<ul style="list-style-type: none"> <li>U.S. PPP focused infrastructure with strong construction company network</li> <li>Strategy of exiting after stabilizing projects</li> </ul>

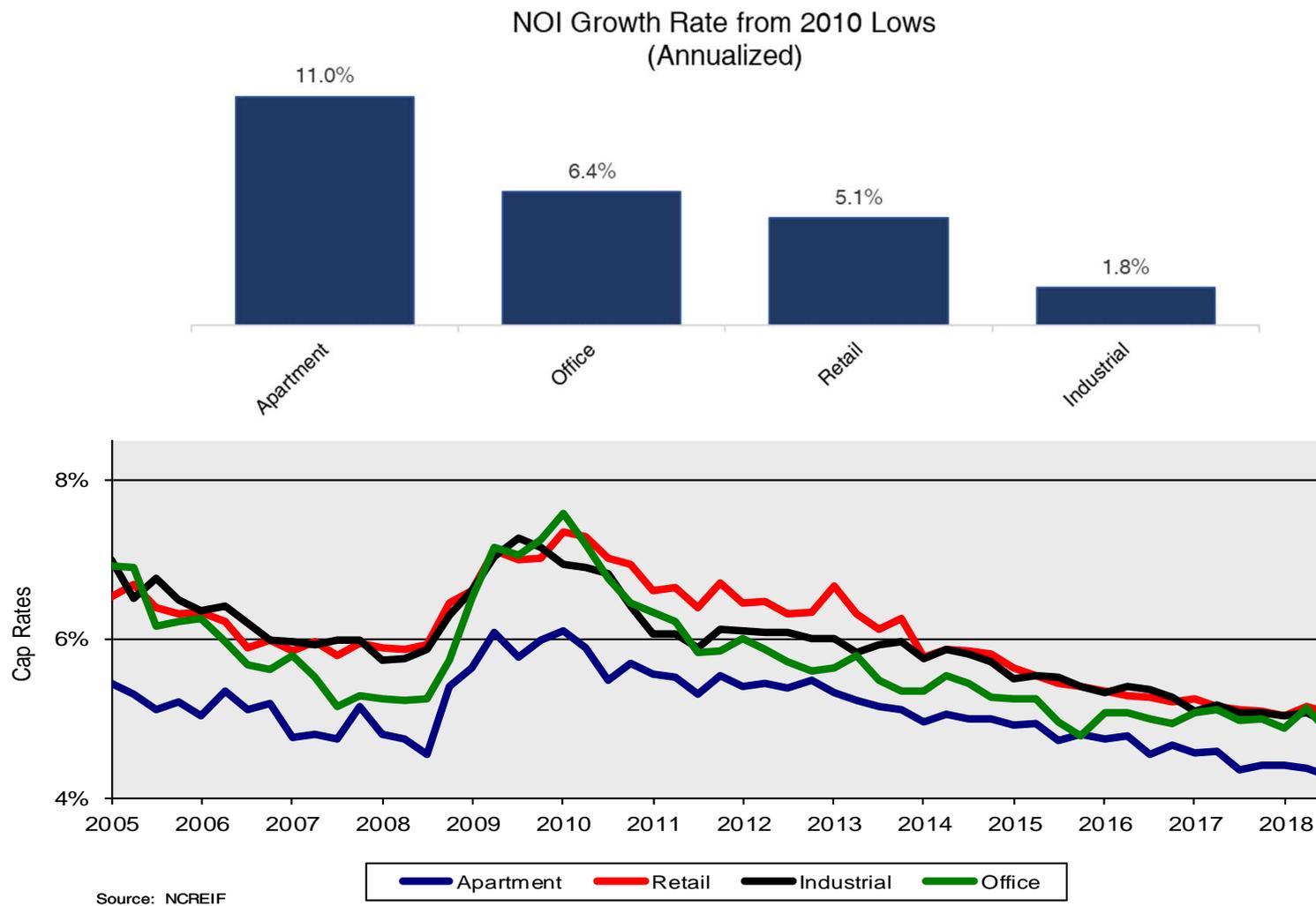
Energy & Mining Funds	
Taurus Mine Finance 2* <i>Q1 2019 first close</i>	<ul style="list-style-type: none"> <li>Senior secured debt to production or near production mines</li> <li>Experienced credit team backed by mining technical professionals</li> </ul>
Tailwater Midstream IV <i>Q3 2019 first close</i>	<ul style="list-style-type: none"> <li>Small to medium cap midstream investments in the U.S.</li> <li>Strong prior fund exits</li> </ul>
Ridgewood Energy Oil & Gas Fund IV <i>Q2 2019 first close</i>	<ul style="list-style-type: none"> <li>Deep water Gulf of Mexico resources profitable at low crude oil pricing</li> <li>&gt;80% success rate of developing substantial reserves</li> </ul>

\*Notes Cliffwater approved fund.

<sup>1</sup> Source: Preqin (Real Estate & Infrastructure)

<sup>2</sup> Source: PitchBook Data Inc. (Energy)

# Diverging Real Estate NOI Growth Trends Across Sectors



# Cliffwater Disclosures

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