

# Texas Municipal Retirement System

## Investment Cost Effectiveness Analysis - Summary of Results

For the 3 year period ending December 31, 2018



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## This benchmarking report compares your cost and return performance to the 287 funds in CEM's extensive pension database.

- 164 U.S. pension funds participate. The median U.S. fund had assets of \$8.6 billion and the average U.S. fund had assets of \$23.9 billion. Total participating U.S. assets were \$3.9 trillion.

- 77 Canadian funds participate with assets totaling \$1.5 trillion.

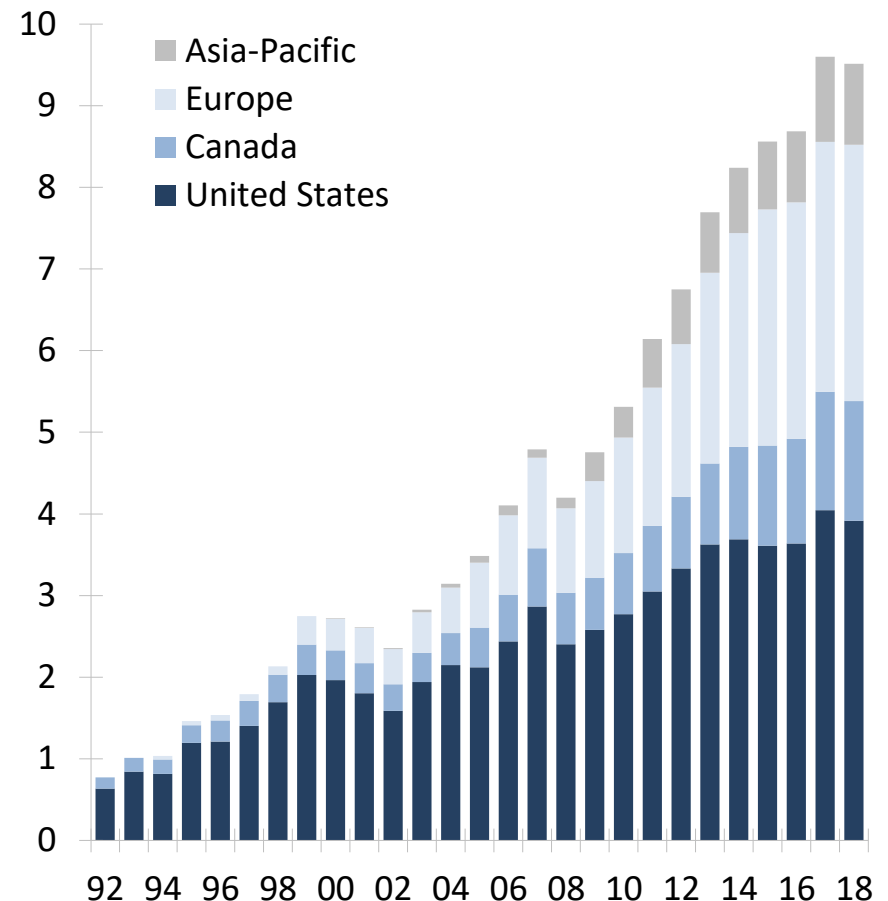
- 38 European funds participate with aggregate assets of \$3.1 trillion. Included are funds from the Netherlands, Norway, Sweden, Finland, Ireland, Denmark and the U.K.

- 6 Asia-Pacific funds participate with aggregate assets of \$990.8 billion. Included are funds from Australia, New Zealand, China and South Korea.

- 3 Gulf region funds participate.

The most meaningful comparisons for your returns and value added are to the U.S. Public universe.

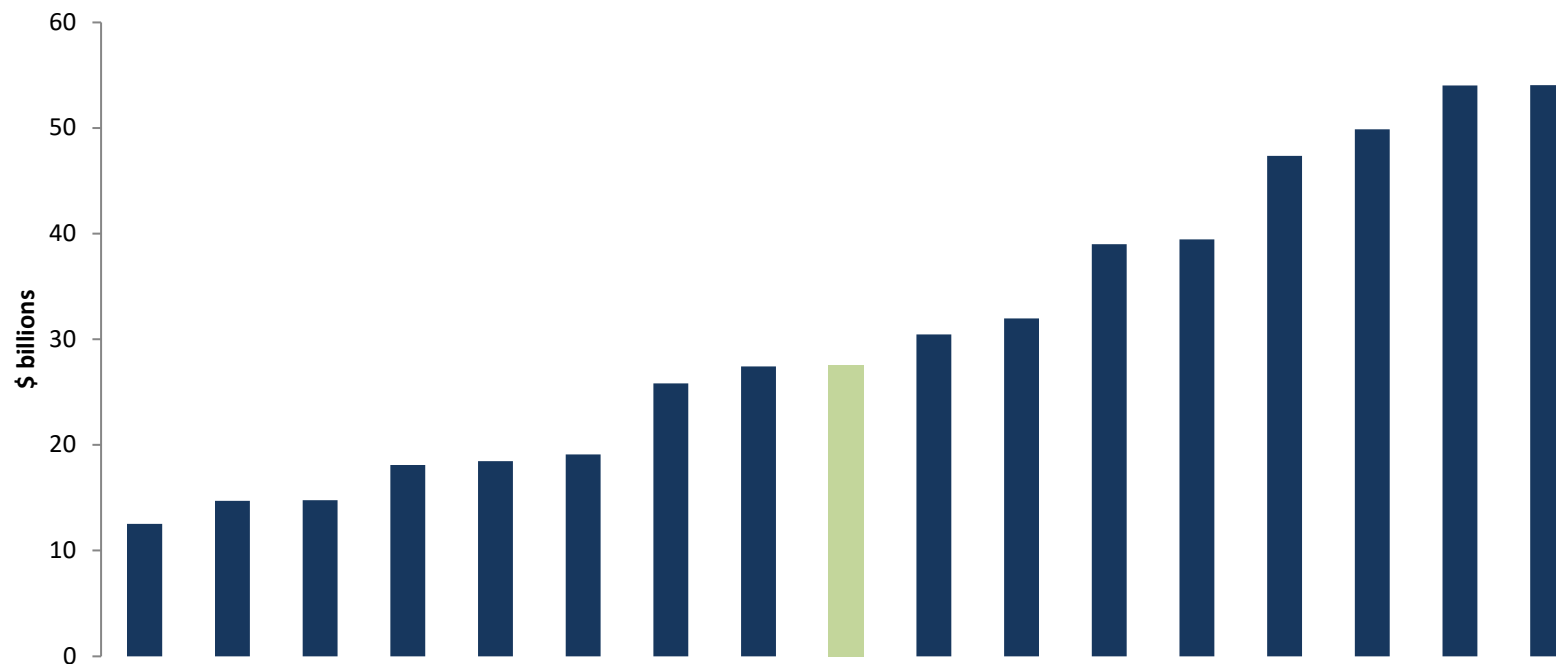
Participating assets (\$ trillions)



# The most valuable comparisons for cost performance are to your custom peer group because size impacts costs.

## Peer group for Texas Municipal Retirement System

- 17 U.S. Public sponsors from \$12.5 billion to \$54.1 billion
- Median size of \$27.6 billion versus your \$27.6 billion



To preserve client confidentiality, given potential access to documents as permitted by the Freedom of Information Act, we do not disclose your peers' names in this document.

## Your investment costs were \$200.3 million or 71.5 basis points in 2018.

Asset management costs by asset class and style (\$000s)	Internal Overseeing of external	External Management			Total
		Passive fees	Active base fees	Perform. fees	
Stock - U.S.	620	666	10,367		11,653
Stock - ACWI x U.S.	496	1,122	10,140		11,758
Stock - Other			14,303		14,303
Fixed Income - U.S.	500		3,945		4,445
Fixed Income - Emerging	93		2,844		2,937
Fixed Income - High Yield	80		2,456		2,536
Hedge Fund - External Active	687		41,208	4,799	46,694
Hedge Fund - FoFs <sup>1 2</sup>	44		2,083	1,359	3,486
Real Estate ex-REITs - LP	559		32,140	excluded <sup>3</sup>	32,699
Other Real Assets	559		14,835	excluded <sup>3</sup>	15,394
Diversified Private Equity - LP	754		15,692	excluded <sup>3</sup>	16,446
Private Credit - LP	400		23,519	excluded <sup>3</sup>	23,919
Private Credit - External	100		7,644	excluded <sup>3</sup>	7,744
Total excluding private asset performance fees					194,013 69.3bp
<b>Oversight, custodial and other costs <sup>4</sup></b>					
Oversight of the fund					1,481
Trustee & custodial					1,954
Consulting and performance measurement					1,752
Audit					0
Other					1,075
Total oversight, custodial & other costs					6,262 2.2bp
Total investment costs (excl. transaction costs & private asset performance fees)					200,276 71.5bp

### Footnotes

1. Default underlying costs were added: Hedge Fund - FoFs 129 bp.

2. Default underlying performance fees were added: Hedge Fund - FoFs 83 bp.

Refer to Appendix A for full details regarding defaults.

3. Performance fees paid on private assets of \$30.6 million were excluded because of comparability concerns.

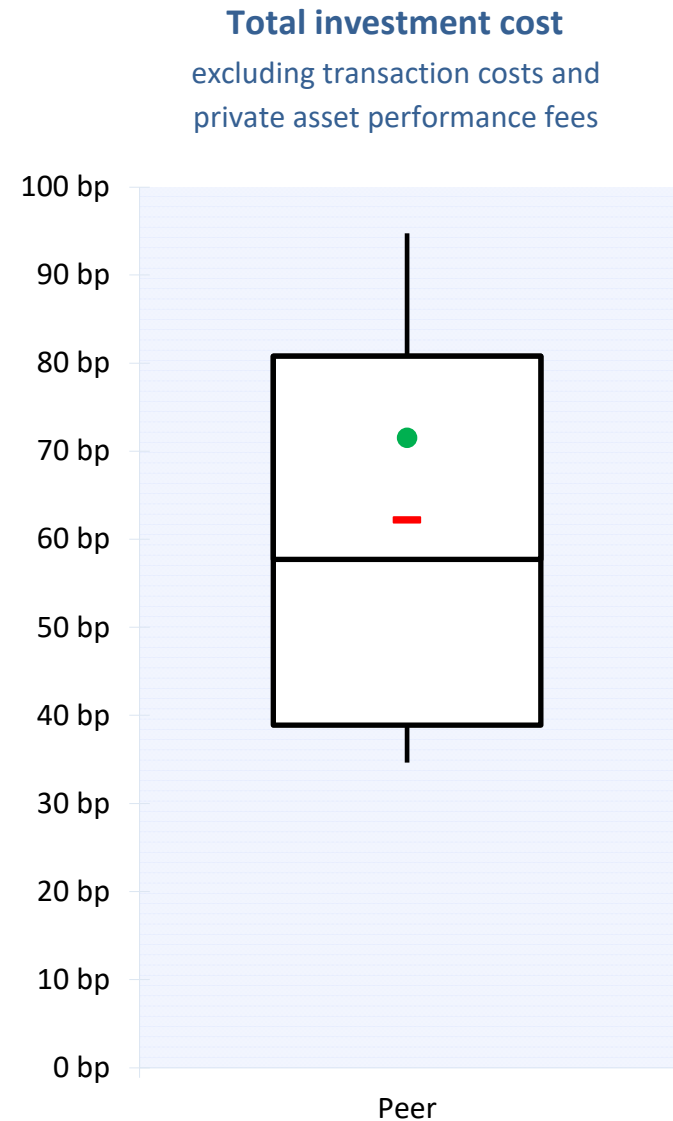
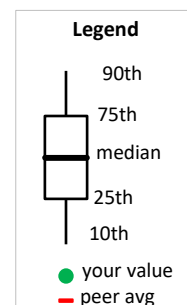
4. Excludes non-investment costs, such as benefit insurance premiums and preparing cheques for retirees.

## Before adjusting for asset mix, your total investment cost of 71.5 bps was above the peer median of 57.7 bps.

Differences in total investment cost are often caused by two factors that are often outside of management's control:

- Asset mix, particularly holdings of the highest cost asset classes: real estate (excl. REITS), infrastructure, hedge funds and private equity. These high cost assets equaled 21% of your funds assets at the end of 2018 versus a peer average of 23%.
- Fund size. Bigger funds have advantages of scale.

Therefore, to assess whether your costs are high or low given your unique asset mix and size, CEM calculates a benchmark cost for your fund. This analysis is shown on the following page.



## After adjusting for asset mix and fund size, your fund was low cost by 3.4 basis points in 2018.

Your benchmark cost is an estimate of what your cost would be given your actual asset mix and the median costs that your peers pay for similar services. It represents the cost your peers would incur if they had your actual asset mix.

Your total cost of 71.5 bp was slightly below your benchmark cost of 74.9 bp. Thus, your cost savings were 3.4 bp.

### Your cost versus benchmark

	\$000s	basis points
Your total investment cost	200,276	71.5 bp
Your benchmark cost	209,750	74.9 bp
Your excess cost	(9,474)	(3.4) bp

# Your fund was low cost because you paid less than peers for similar services and you had a lower cost implementation style.

## Reasons for your low cost status

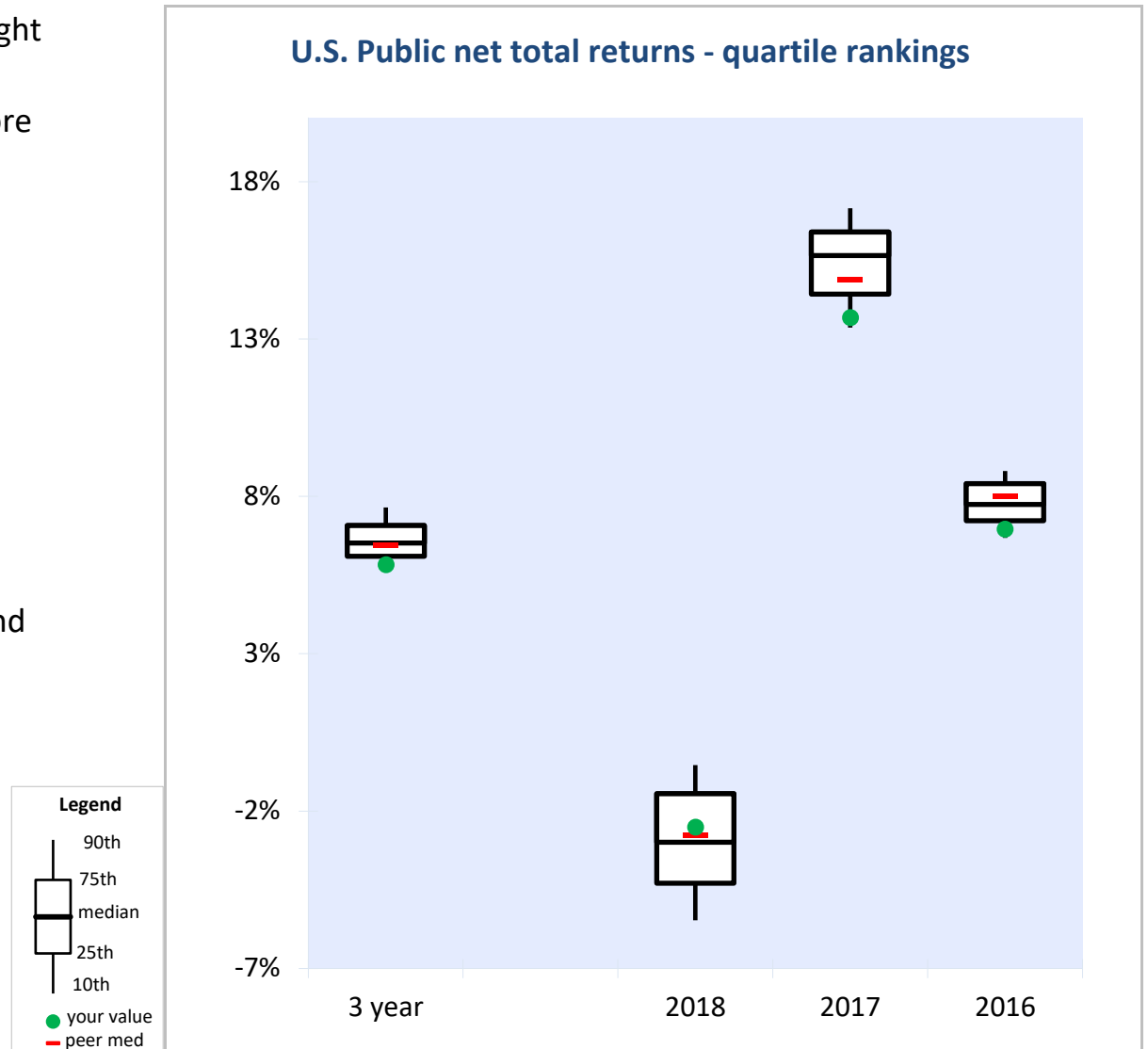
			Excess Cost/ (Savings)	
			\$000s	bps
1. Lower cost implementation style				
• Use of active management (vs. lower cost passive )			(5,063)	(1.8)
• More external management (vs. lower cost internal)			3,100	1.1
• More partnerships for private assets (vs. funds)			6,491	2.3
• Less fund of funds			(7,806)	(2.8)
• Less co-investment as a percentage of LP/Co			182	0.1
• Less overlays			(803)	(0.3)
			<u>(3,899)</u>	<u>(1.4)</u>
2. Paying less than peers for similar services				
• External investment management costs	<u>You</u>	<u>Peer Median</u>		
Private Credit - Lp - Base fees	75.8 bp	111.0 bp	(11,101)	(4.0)
Hedge Funds - Direct - Base fees	184.5 bp	143.6 bp	9,279	3.3
Hedge Funds - Direct - Performance fees	21.1 bp	41.7 bp	(4,660)	(1.7)
U.S. Stock - Active	52.0 bp	36.5 bp	3,163	1.1
All other differences			(2,622)	(0.9)
• Oversight, custodial and other costs			365	0.1
			<u>(5,575)</u>	<u>(2.0)</u>
<b>Total savings</b>			<b>(9,474)</b>	<b>(3.4)</b>

## Your 3-year net total return of 5.9% was below both the U.S. Public median of 6.6% and the peer median of 6.5%.

Total returns, by themselves, provide little insight into the reasons behind relative performance. Therefore, we separate total return into its more meaningful components: policy return and value added.

	Your 3-year
Net total fund return	5.9%
- Policy return	5.7%
= Net value added	0.2%

This approach enables you to understand the contribution from both policy mix decisions (which tend to be the board's responsibility) and implementation decisions (which tend to be management's responsibility).





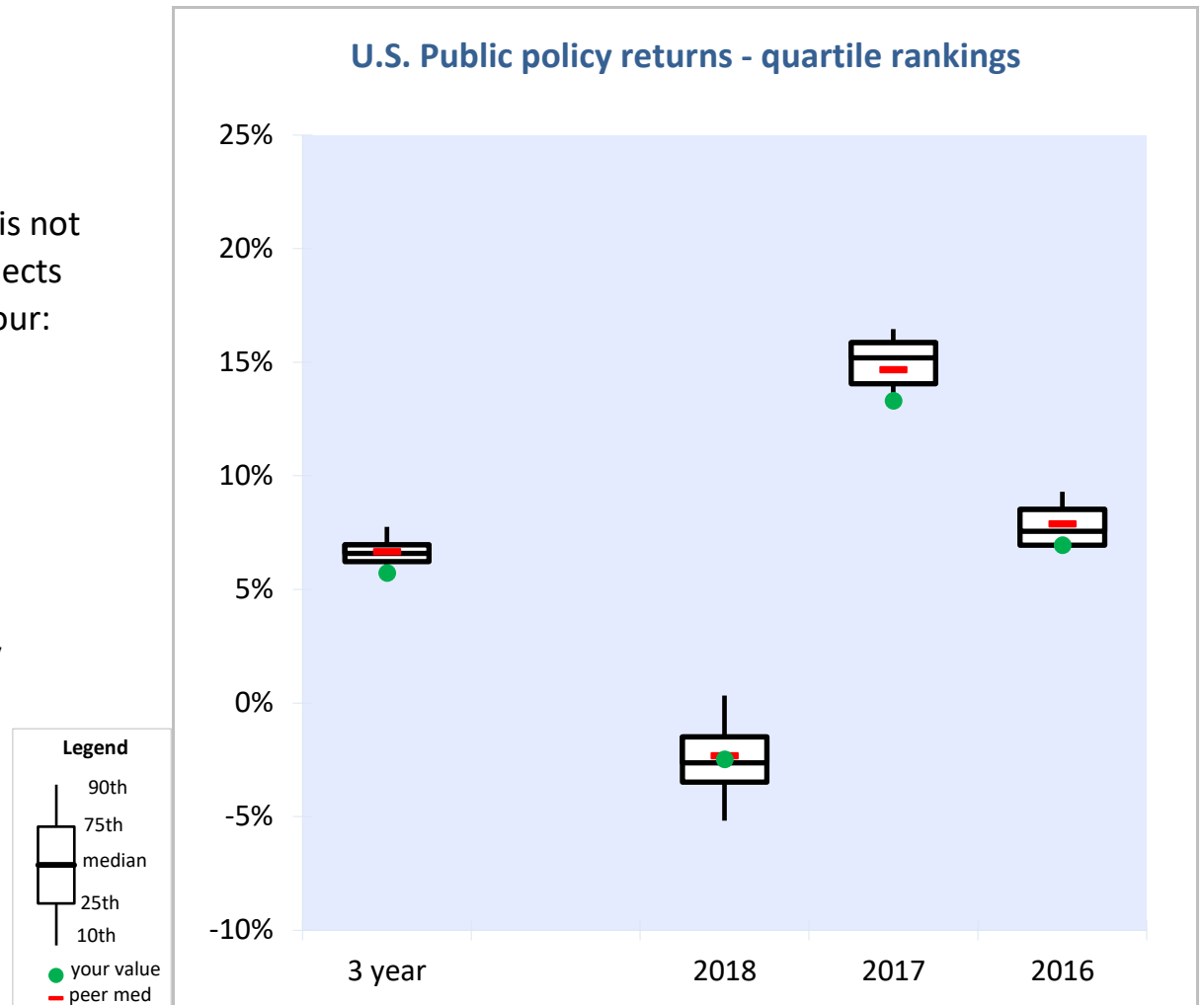
## Your 3-year policy return of 5.7% was below both the U.S. Public median of 6.6% and the peer median of 6.7%.

Your policy return is the return you could have earned passively by indexing your investments according to your policy mix.

Having a higher or lower relative policy return is not necessarily good or bad. Your policy return reflects your investment policy, which should reflect your:

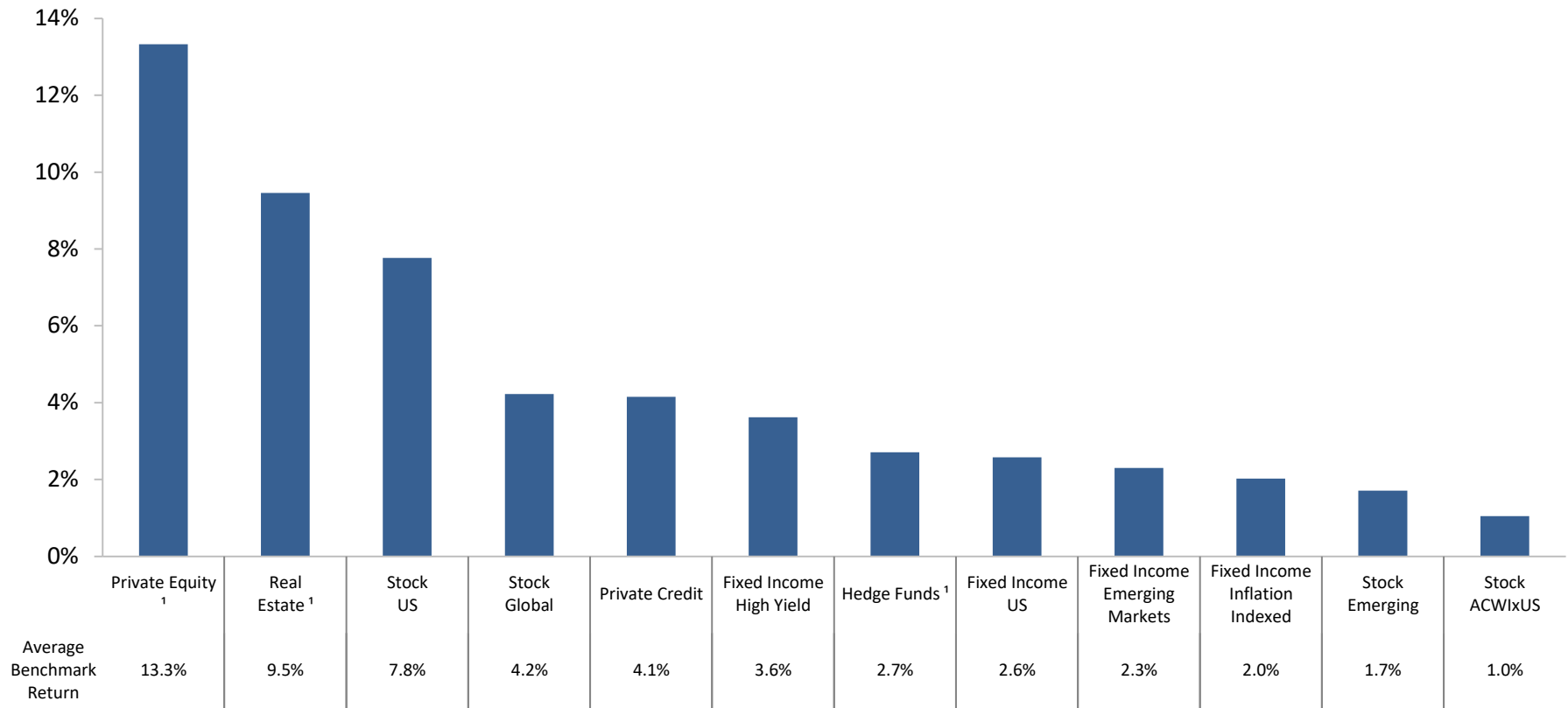
- Long term capital market expectations
- Liabilities
- Appetite for risk

Each of these three factors is different across funds. Therefore, it is not surprising that policy returns often vary widely between funds.



To enable fairer comparisons, the policy returns of all participants except your fund were adjusted to reflect private equity benchmarks based on lagged, investable, public-market indices. If CEM used this same adjustment for your fund, your 3-year policy return would be 5.6%, 0.1% lower than your actual 3-year policy return of 5.7%. Mirroring this, your 3-year total fund net value added would be 0.1% higher.

Differences in policy returns are caused by differences in benchmarks and policy mix. The three best performing asset classes for the 3 years ending 2018 were Private Equity, Real Estate and U.S. stock.



1. The private equity benchmark is the average of the default private equity benchmark returns applied to U.S. Public participants. The hedge fund and real estate benchmarks are the averages of benchmark returns reported by U.S. Public participants.

**Your 3-year policy return of 5.7% was below the U.S. Public median of 6.6%, primarily because you had less equity and more fixed income and hedge funds during a period equity outperformed.**

### 3-year average policy mix

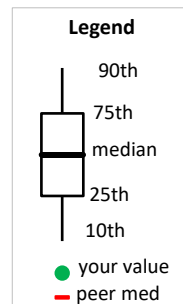
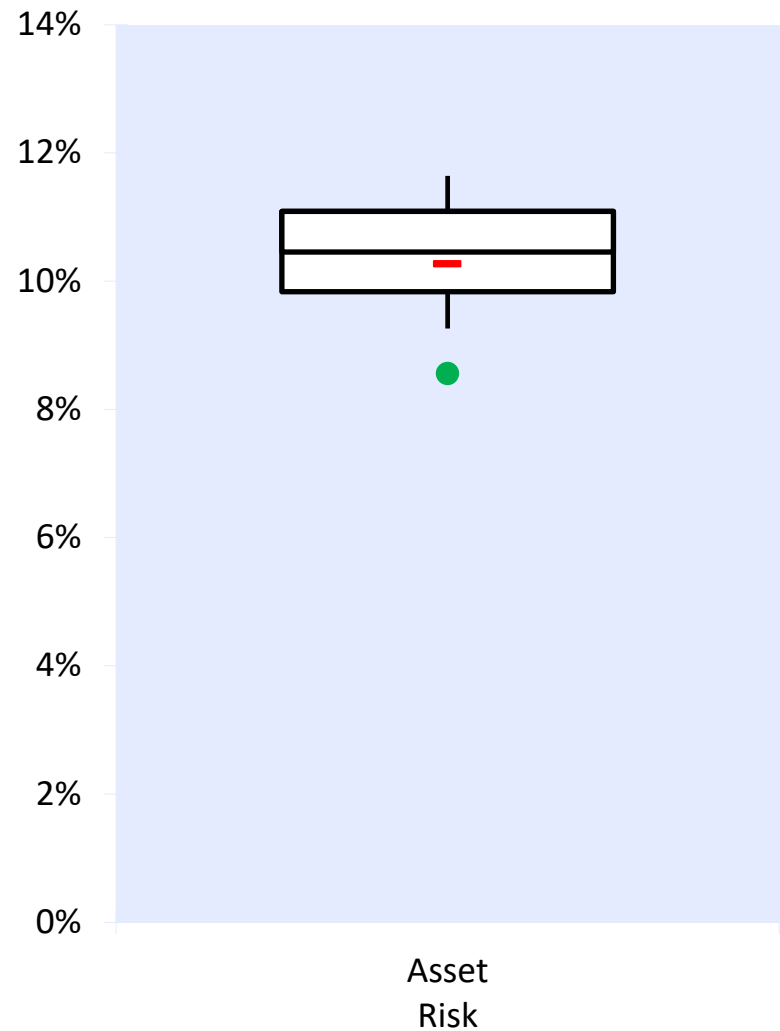
	Your Fund	U.S. Publ Avg.	More/ Less
U.S. Stock	22%	20%	
Global Stock		11%	
Other Stock	9%	1%	
Foreign Stock <sup>1</sup>	17%	17%	
Private Equity	1%	8%	
<b>Total Equity</b>	<b>49%</b>	<b>57%</b>	<b>-9%</b>
U.S. Bonds	17%	18%	
Inflation Indexed Bonds		3%	
High Yield Bonds	1%	2%	
Fixed Income - Emerging	2%	1%	
Global Bonds		1%	
Cash	0%	-1%	
Private Debt	11%	2%	
Other Fixed Income		1%	
<b>Total Fixed Income</b>	<b>31%</b>	<b>26%</b>	<b>5%</b>
Hedge Funds	10%	4%	6%
Real Estate ex-REITs	9%	8%	1%
Other Real Assets	1%	4%	-3%
<b>Total</b>	<b>100%</b>	<b>100%</b>	

1. Foreign stock includes EAFE, emerging market stock, ACWIXUS stock.

## Your asset risk of 8.6% was below the U.S. Public median of 10.5%.

Asset risk is the standard deviation of your policy return. It is based on the historical variance of, and covariance between, the asset classes in your policy mix.

U.S. Public risk levels at December 31, 2018



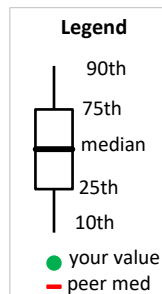
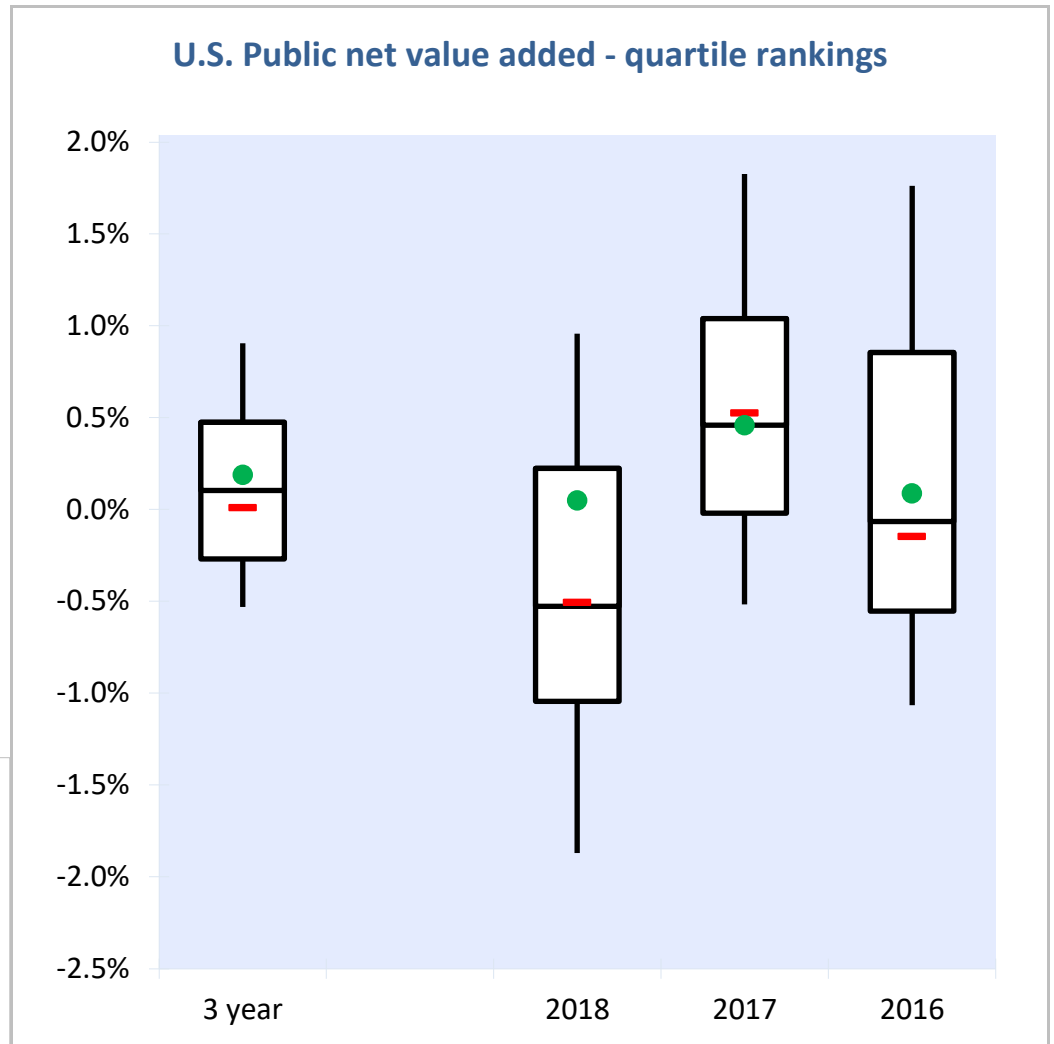
# Net value added is the component of total return from active management. Your 3-year net value added was 0.2%.

Net value added equals total net return minus policy return.

## Value added for Texas Municipal Retirement System

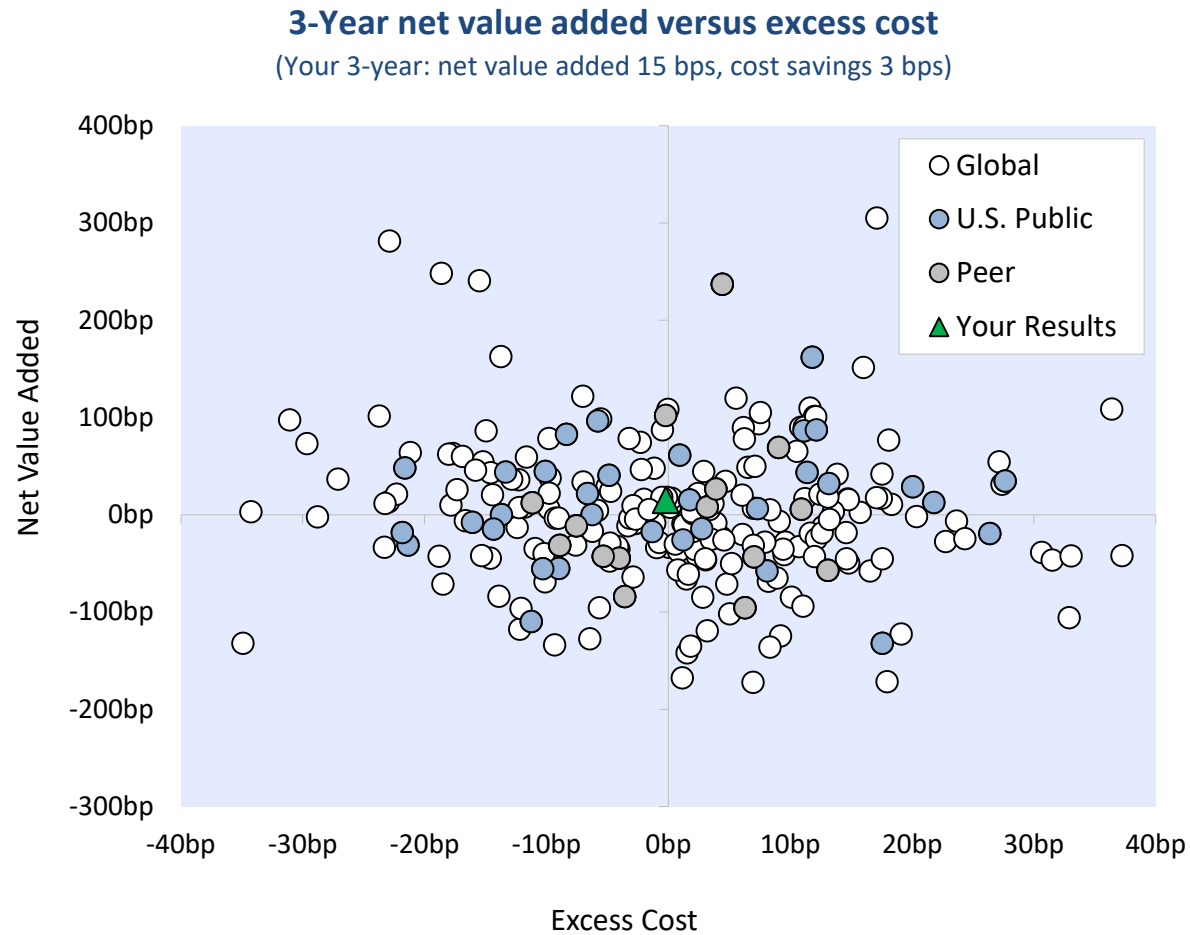
Year	Net Return	Policy Return	Net value Added
2018	-2.5%	-2.5%	0.0%
2017	13.7%	13.3%	0.4%
2016	7.0%	7.0%	0.0%
3-Year	5.9%	5.7%	0.2%

Your 3-year net value added of 0.2% compares to a median of 0.0% for your peers and 0.1% for the U.S. Public universe.



Your value added was impacted by your choice of benchmarks for private equity. CEM suggests using lagged, investable benchmarks for private equity. If your fund used the private equity benchmark suggested by CEM, your 3-year total fund value added would have been 0.1% higher.

**Your 3-year performance placed you in the positive value added, low cost quadrant of the cost effectiveness chart.**



# Summary of key takeaways

## Cost

- Your investment cost of 71.5 bps was below your benchmark cost of 74.9 bps. This suggests that your fund was low cost compared to your peers.
- Your fund was low cost because you paid less than peers for similar services and you had a lower cost implementation style.

## Returns

- Your 3-year net total return was 5.9%. This was below the U.S. Public median of 6.6% and below the peer median of 6.5%.
- Your 3-year policy return was 5.7%. This was below the U.S. Public median of 6.6% and below the peer median of 6.7%.

## Risk

- Your asset risk of 8.6% was below the U.S. Public median of 10.5%.

## Value added

- Your 3-year net value added was 0.2%. This was above the U.S. Public median of 0.1% and above the peer median of 0.0%.

## Cost effectiveness

- Your 3-year performance placed you in the positive value added, low cost quadrant of the cost effectiveness chart.