



# TMRS Quarterly Summary

Period Ended: March 31, 2018

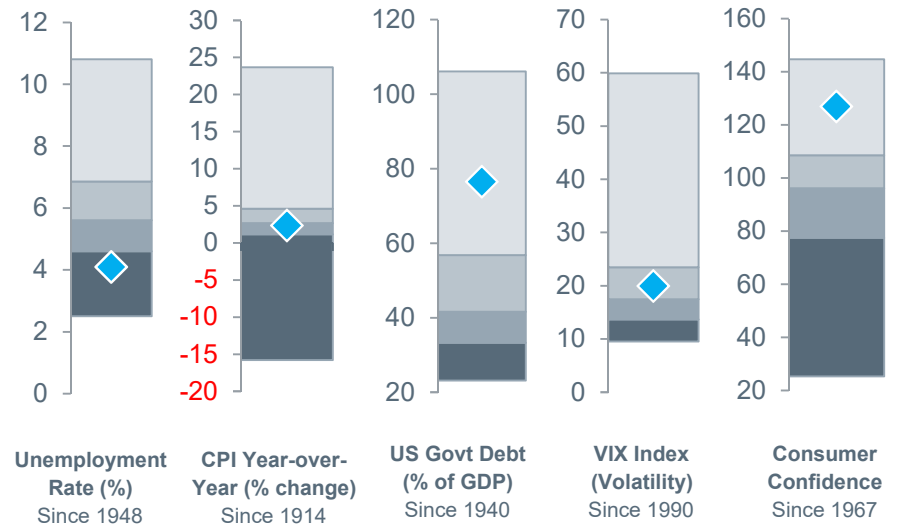


**First Quarter Economic Environment**

**Key Economic Indicators**

The quarter began with a substantial global equity market rally in January. Drivers of the rally included improving global economic fundamentals, continuation of generally accommodative monetary policies among global central banks, and continued corporate earnings growth. The market rally reversed sharply in February in response to an uptick in inflation expectations, a repricing of the yield curve, and a dramatic spike in equity market volatility. The quarter ended with developed equity markets in negative territory, US duration sensitive assets down moderately, and global bond markets maintaining slight gains in part due to a weakening US Dollar. The Federal Open Market Committee set the federal funds target range at 1.50% to 1.75%, an increase of 0.25%, and maintained guidance for two additional rate increases in 2018. US economic data continued to generally indicate a robust economic expansion. Non-farm payroll growth averaged in excess of 200,000 job gains per month while Purchasing Manager's data for both the US manufacturing and non-manufacturing sectors indicated continued expansion.

**Key Economic Indicators**



**Economic Indicators**

	Mar-18	Dec-17	Mar-17	Mar-15	20 Yr
Federal Funds Rate (%)	1.68 ▲	1.33	0.82	0.06	2.07
Breakeven Infl. - 1 Yr (%)	2.23 ▲	0.85	2.06	1.46	N/A
Breakeven Infl. - 10 Yr (%)	2.06 ▲	1.98	1.98	1.78	N/A
CPI YoY (Headline) (%)	2.4 ▲	2.1	2.4	-0.1	2.2
Unemployment Rate (%)	4.1 —	4.1	4.5	5.5	5.9
Real GDP YoY (%)	2.8 ▲	2.6	2.0	3.8	2.2
PMI - Manufacturing	59.3 —	59.3	56.6	51.8	52.5
USD Total Wtd Idx	86.37 ▼	87.47	93.96	92.06	86.59
WTI Crude Oil per Barrel (\$)	64.9 ▲	60.4	50.6	47.6	58.1
Gold Spot per Oz (\$)	1,326 ▲	1,303	1,249	1,184	843

**Treasury Yield Curve (%)**



**Market Performance (%)**

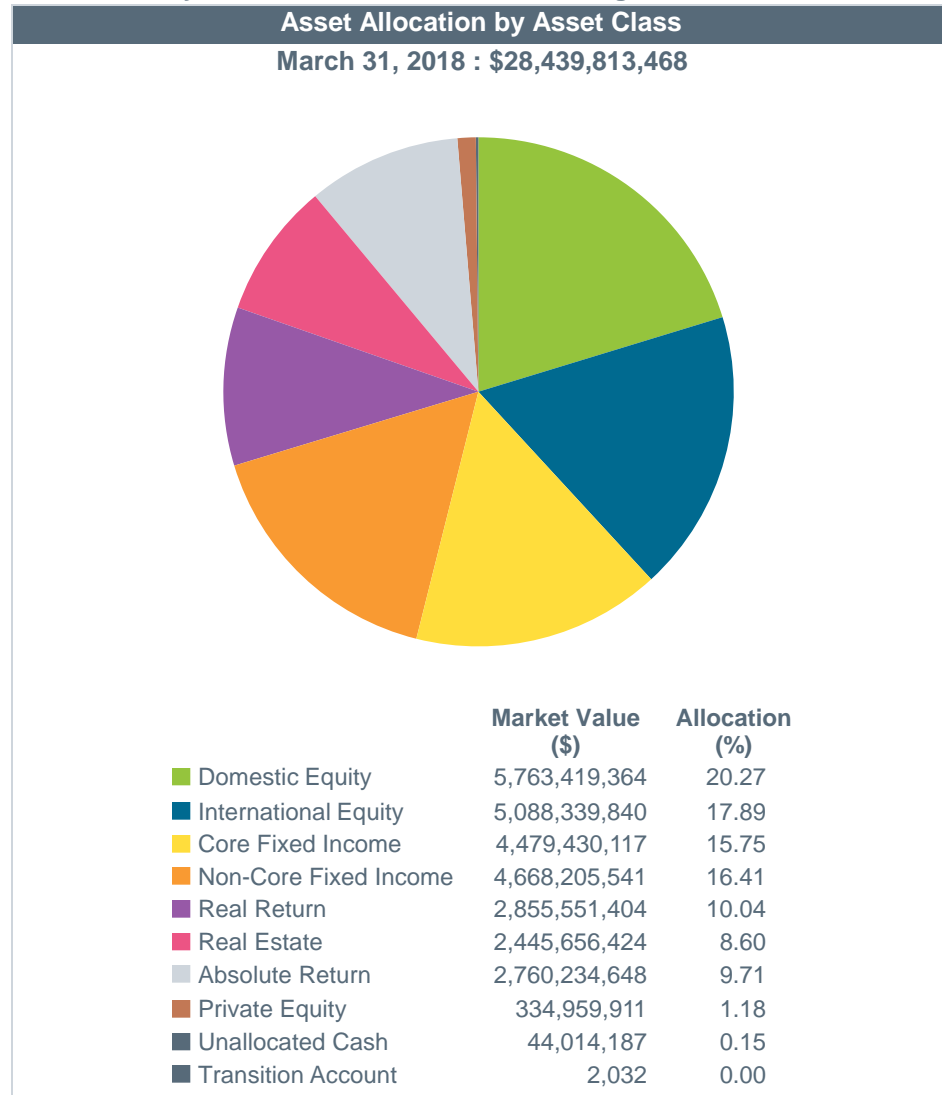
	QTD	CYTD	1 Yr	5 Yr	10 Yr
S&P 500 (Cap Wtd)	-0.76	-0.76	13.99	13.31	9.49
Russell 2000	-0.08	-0.08	11.79	11.47	9.84
MSCI EAFE (Net)	-1.53	-1.53	14.80	6.50	2.74
MSCI EAFE SC (Net)	0.24	0.24	23.49	11.10	6.48
MSCI Emg Mkts (Net)	1.42	1.42	24.93	4.99	3.02
Bloomberg US Agg Bond	-1.46	-1.46	1.20	1.82	3.63
ICE BofAML 3 Mo US T-Bill	0.35	0.35	1.11	0.34	0.34
NCREIF ODCE (Gross)	2.20	2.20	8.07	11.43	5.11
Wilshire US REIT	-7.48	-7.48	-3.64	6.13	6.22
HFRI FOF Comp	0.25	0.25	5.52	3.38	1.55
Bloomberg Cmdty (TR)	-0.40	-0.40	3.71	-8.32	-7.71

Treasury data courtesy of the US Department of the Treasury. Economic data courtesy of Bloomberg Professional Service. Breakeven Inflation does not have 20 years of history; therefore, its 20-year average is shown as N/A.



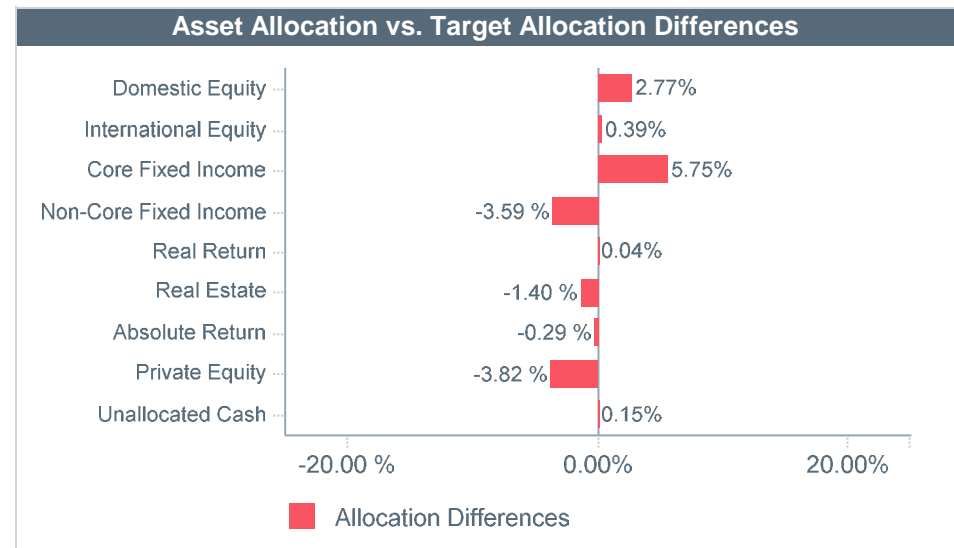
Total Fund Composite

Asset Alloc. by Asset Class, Asset Alloc. vs. Target, and Schedule of Investable Assets



**Asset Allocation vs. Target Allocation**

	Market Value (\$)	Allocation (%)	Target (%)
Domestic Equity	5,763,419,364	20.27	17.50
International Equity	5,088,339,840	17.89	17.50
Core Fixed Income	4,479,430,117	15.75	10.00
Non-Core Fixed Income	4,668,205,541	16.41	20.00
Real Return	2,855,551,404	10.04	10.00
Real Estate	2,445,656,424	8.60	10.00
Absolute Return	2,760,234,648	9.71	10.00
Private Equity	334,959,911	1.18	5.00
Unallocated Cash	44,014,187	0.15	0.00
Total Fund	28,439,811,435	100.00	100.00



**Schedule of Investable Assets**

Periods Ending	Beginning Market Value (\$)	Net Cash Flow (\$)	Gain/Loss (\$)	Ending Market Value (\$)	% Return	Unit Value
CYTD	28,433,178,555	-42,810,970	49,445,883	28,439,813,468	0.25	100.25

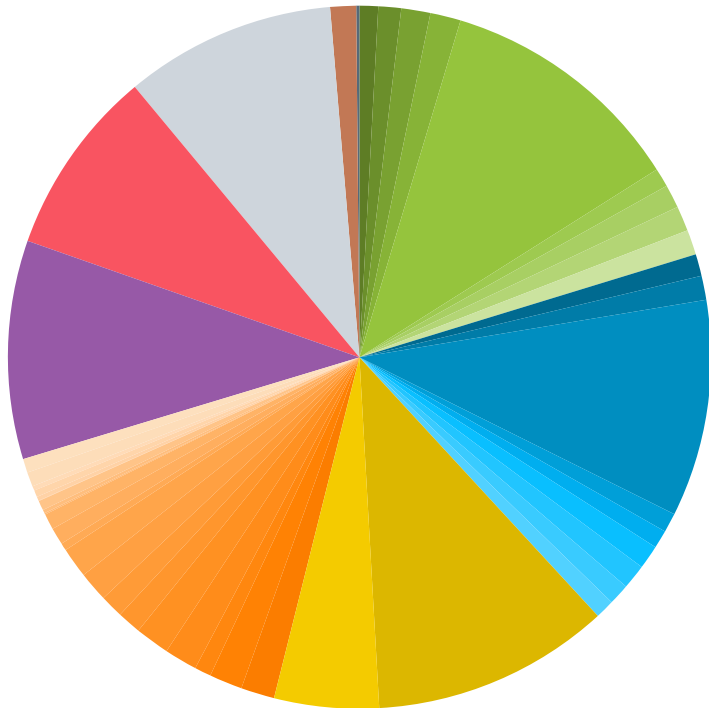
Performance shown is gross of fees and provided by State Street. Allocations shown may not sum up to 100% exactly due to rounding. Gain/Loss figure includes both realized and unrealized gains and losses. Asset Allocation vs. Target Allocation charts do not include the Transition Account. Domestic Equity includes Citi Global Markets, Inc.



Texas Municipal Retirement System  
Asset Allocation By Manager

As of March 31, 2018

March 31, 2018 : \$28,439,813,468



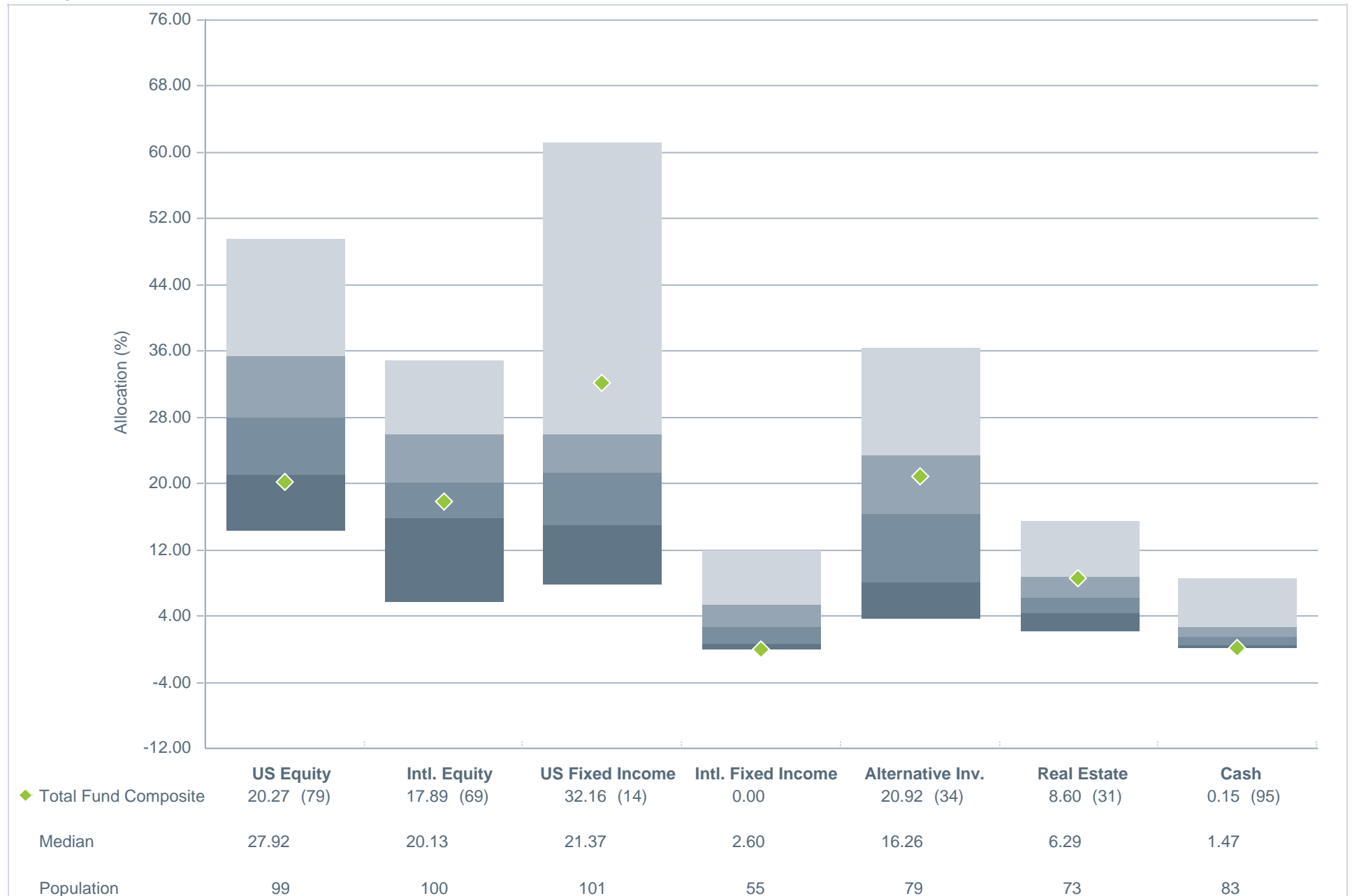
	Market Value (\$)	Allocation (%)
Sasco U.S. Contrarian Value (SA)	242,444,094	0.85
Epoch U.S. Choice (SA)	297,734,535	1.05
State Street Russell Fndmtl US Index NL (CF)	379,093,271	1.33
UBS US Equity Min Volatility Index (CF)	399,179,708	1.40
NT Collective Russell 3000 Index NL (CF)	3,239,313,597	11.39
The Boston Company Mid Cap Opp Value (SA)	246,339,890	0.87
Champlain Mid-Cap Core (SA)	305,488,728	1.07
Wellington US Small Cap Opp (SA)	327,581,504	1.15
The Boston Company Small Cap Opp Value (SA)	326,234,538	1.15
State Street Russell Fndmtl Gbl ex-US Index NL (CF)	286,984,189	1.01
UBS World Ex US Min Volatility NL (CF)	314,488,555	1.11
NT Daily Collective ACW Ex US IMI Non-Lending (CF)	2,839,578,772	9.98
Wellington International Horizons (SA)	252,778,167	0.89
Lazard International Equity Plus (SA)	235,956,179	0.83
Wasatch International Small Cap Growth (SA)	308,626,724	1.09
Wellington International Small Cap Opp (SA)	325,518,603	1.14
Acadian Emerging Markets (SA)	272,782,936	0.96
William Blair Emerging Markets (SA)	251,625,715	0.88
BlackRock, Inc. Core (SA)	3,113,845,900	10.95
PIMCO Core Plus Fixed Income (SA)	1,365,584,217	4.80
Ellington RMBS/CMBS (SA)	439,614,341	1.55
Voya RMBS/CMBS (SA)	435,020,549	1.53
Waterfall Eden Fund, LP	214,825,800	0.76
Guggenheim Bandera Strategic Credit Partners II, LP	428,720,669	1.51
Highland Bandera Strategic Credit Partners I, LP	449,542,766	1.58
Columbia Management Investment Advisers, LLC	310,182,000	1.09
Neuberger Berman Investment Advisers, LLC	305,700,000	1.07
Alliance Bernstein Emerging Mkt Debt (SA)	391,312,153	1.38
BlueBay Emerging Mkt Debt (SA)	394,455,128	1.39
Bain Capital Credit, LP	101,421,200	0.36
Beach Point Total Ret Fd II, LP	220,663,600	0.78
GoldenTree Asset Management, LP	205,846,000	0.72
Marathon CLO Equity Fund, LP	19,847,709	0.07
Marathon ECO Fund III, LP	44,882,250	0.16
Marathon SPS Fund, LP	127,835,336	0.45
Adams Street Private Credit Fund-A, LP	1,711,979	0.01
BlackRock Global Credit Opportunities, LP	5,080,176	0.02
Golub Capital Pearls DLP, LP	54,642,964	0.19
H.I.G. Whitehorse Capital, LLC	88,108,289	0.31
PIMCO Corp Op Fd II Onshore, LP	57,661,981	0.20
TCW Brazos Fund, LLC	188,343,414	0.66
White Oak Summit Fund, LP	182,787,237	0.64
Real Return	2,855,551,404	10.04
Real Estate	2,445,656,424	8.60
Absolute Return	2,760,234,648	9.71
Private Equity	334,959,911	1.18
State Street Government STIF 6 (CF) - Cash	44,014,187	0.15
Citigroup Global Markets, Inc.	9,499	0.00
Transition Account	2,032	0.00

Allocations shown may not sum up to 100% exactly due to rounding.



Texas Municipal Retirement System  
 All Public Plans > \$1B-Total Fund  
 Plan Sponsor TF Asset Allocation

As of March 31, 2018



Parentheses contain percentile ranks. Allocations shown may not sum up to 100% exactly due to rounding.



**Texas Municipal Retirement System  
Comparative Performance**

As of March 31, 2018

	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
<b>Total Fund Composite</b>	<b>0.25</b>	<b>0.25</b>	<b>10.12</b>	<b>6.55</b>	<b>6.81</b>	<b>6.81</b>	<b>6.51</b>	<b>14.27</b>	<b>8.63</b>	<b>01/01/1989</b>
Actual Allocation Benchmark	-0.10	-0.10	8.98	5.78	6.29	6.34	6.31	13.30	8.00	
Difference	0.35	0.35	1.14	0.77	0.52	0.47	0.20	0.97	0.63	
<b>Global Equity Composite</b>	<b>-0.18</b>	<b>-0.18</b>	<b>16.16</b>	<b>9.35</b>	<b>10.39</b>	<b>9.08</b>	<b>6.42</b>	<b>24.22</b>	<b>6.14</b>	<b>02/01/2008</b>
Global Equity Benchmark	-0.84	-0.84	15.20	8.95	10.09	8.84	6.21	23.84	5.93	
Difference	0.66	0.66	0.96	0.40	0.30	0.24	0.21	0.38	0.21	
<b>Domestic Equity Composite</b>	<b>-0.68</b>	<b>-0.68</b>	<b>13.33</b>	<b>9.97</b>	<b>12.77</b>	<b>12.22</b>	<b>9.51</b>	<b>20.55</b>	<b>8.94</b>	<b>02/01/2008</b>
Russell 3000 Index	-0.64	-0.64	13.81	10.22	13.03	12.39	9.62	21.13	9.05	
Difference	-0.04	-0.04	-0.48	-0.25	-0.26	-0.17	-0.11	-0.58	-0.11	
<b>International Equity Composite</b>	<b>0.39</b>	<b>0.39</b>	<b>19.76</b>	<b>7.91</b>	<b>7.19</b>	<b>5.35</b>	<b>2.90</b>	<b>29.41</b>	<b>2.89</b>	<b>02/01/2008</b>
International Equity Benchmark	-1.06	-1.06	17.10	6.75	6.24	4.63	2.31	27.81	2.31	
Difference	1.45	1.45	2.66	1.16	0.95	0.72	0.59	1.60	0.58	
<b>Core Fixed Income Composite</b>	<b>-1.42</b>	<b>-1.42</b>	<b>1.55</b>	<b>1.49</b>	<b>1.98</b>	<b>3.18</b>	<b>3.53</b>	<b>3.93</b>	<b>7.58</b>	<b>01/01/1989</b>
Fixed Income Benchmark	-1.46	-1.46	1.20	1.20	1.82	2.92	3.51	3.54	7.02	
Difference	0.04	0.04	0.35	0.29	0.16	0.26	0.02	0.39	0.56	
<b>Non-Core Fixed Income Composite</b>	<b>1.43</b>	<b>1.43</b>	<b>6.89</b>	<b>5.70</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>8.06</b>	<b>5.50</b>	<b>10/01/2014</b>
Non-Core Fixed Income Benchmark	1.13	1.13	5.09	3.74	N/A	N/A	N/A	5.50	3.86	
Difference	0.30	0.30	1.80	1.96	N/A	N/A	N/A	2.56	1.64	

Performance shown is gross of fees and provided by State Street. Performance is annualized for periods greater than one year. Real Estate and Private Equity fund returns are calculated by Private Edge. Private Real Estate fund returns are lagged 1 quarter. Inception dates shown for the Private Real Estate and Private Equity funds and composites represent the first full quarter following initial funding. Inception dates for non-real estate and private equity funds and composites represent the first full month following initial funding.



Texas Municipal Retirement System  
Comparative Performance

As of March 31, 2018

	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
<b>Real Return Composite</b>	<b>-1.78</b>	<b>-1.78</b>	<b>5.65</b>	<b>2.51</b>	<b>1.67</b>	<b>3.27</b>	<b>N/A</b>	<b>8.32</b>	<b>3.49</b>	<b>02/01/2011</b>
Real Return Benchmark	-1.76	-1.76	6.56	3.82	1.99	3.27	2.83	9.91	3.60	
Difference	-0.02	-0.02	-0.91	-1.31	-0.32	0.00	N/A	-1.59	-0.11	
<b>Real Estate Composite</b>	<b>2.58</b>	<b>2.58</b>	<b>10.92</b>	<b>13.49</b>	<b>14.05</b>	<b>N/A</b>	<b>N/A</b>	<b>11.93</b>	<b>13.28</b>	<b>01/01/2012</b>
Real Estate Benchmark	2.07	2.07	7.63	10.40	11.52	12.07	5.02	7.65	11.46	
Difference	0.51	0.51	3.29	3.09	2.53	N/A	N/A	4.28	1.82	
<b>Absolute Return Composite</b>	<b>1.41</b>	<b>1.41</b>	<b>9.30</b>	<b>5.65</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>11.35</b>	<b>5.39</b>	<b>08/01/2014</b>
Absolute Return Benchmark	1.46	1.46	5.75	1.85	3.50	2.59	1.36	7.11	2.45	
Difference	-0.05	-0.05	3.55	3.80	N/A	N/A	N/A	4.24	2.94	
<b>Absolute Return Direct Composite</b>	<b>1.56</b>	<b>1.56</b>	<b>10.54</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>13.21</b>	<b>7.65</b>	<b>01/01/2016</b>
Absolute Return Benchmark	1.46	1.46	5.75	1.85	3.50	2.59	1.36	7.11	3.14	
Difference	0.10	0.10	4.79	N/A	N/A	N/A	N/A	6.10	4.51	
<b>Private Equity Composite</b>	<b>11.77</b>	<b>11.77</b>	<b>25.08</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>19.69</b>	<b>14.65</b>	<b>01/01/2016</b>
Private Equity Benchmark	11.77	11.77	25.08	N/A	N/A	N/A	N/A	19.69	14.65	
Difference	0.00	0.00	0.00	N/A	N/A	N/A	N/A	0.00	0.00	
Russell 3000+3% Index (1 Qtr Lag)	7.13	7.13	24.76	14.45	19.05	16.90	11.86	22.27	21.54	
Difference	4.64	4.64	0.32	N/A	N/A	N/A	N/A	-2.58	-6.89	
<b>TMRS Unallocated Cash (SA)</b>	<b>0.24</b>	<b>0.24</b>	<b>0.88</b>	<b>0.74</b>	<b>0.54</b>	<b>0.39</b>	<b>N/A</b>	<b>0.72</b>	<b>0.41</b>	<b>06/01/2008</b>
FTSE 30 Day T-Bill Index	0.35	0.35	1.04	0.46	0.28	0.21	0.25	0.80	0.23	
Difference	-0.11	-0.11	-0.16	0.28	0.26	0.18	N/A	-0.08	0.18	

- Historical performance shown for the Global Equity, Domestic Equity, International Equity, and Total Fixed Income composites is provided by State Street.
- RVK cautions that for private market investments like Commercial Real Estate, for which there are no market prices as are available for public securities, and for which an appraised value is calculated only quarterly, daily time weighted return calculations (public market return methodology) are imperfect at best and usually misleading.

Performance shown is gross of fees and provided by State Street. Performance is annualized for periods greater than one year. Real Estate and Private Equity fund returns are calculated by Private Edge. Private Real Estate fund returns are lagged 1 quarter. Inception dates shown for the Private Real Estate and Private Equity funds and composites represent the first full quarter following initial funding. Inception dates for non-real estate and private equity funds and composites represent the first full month following initial funding.

**Composite Benchmark Comments**

The **Actual Allocation Benchmark** is calculated monthly using beginning of month asset class weights applied to each corresponding benchmark return and currently consists of the following:

- Russell 3000 Index
- International Equity Benchmark
- Fixed Income Benchmark
- Non-Core Fixed Income Benchmark
- Real Return Benchmark
- Real Estate Benchmark
- Absolute Return Benchmark
- Private Equity Benchmark
- FTSE 30 Day T-Bill Index

The **Global Equity Benchmark** is calculated monthly and consists of 50% Russell 3000 Index and 50% MSCI EAFE Index (USD) (Net) through July 31, 2010; a blend of the Russell 3000 Index, MSCI ACW Ex US IM Index (USD) (Net) and MSCI EAFE Index (USD) (Net) at beginning of month investment weights through November 30, 2012; and a blend of the Russell 3000 Index and the MSCI ACW Ex US IM Index (USD) (Net) at beginning of the month weights thereafter.

The **International Equity Benchmark** is calculated monthly and consists of the MSCI EAFE Index (USD) (Net) through July 31, 2010; a blend of the MSCI ACW Ex US IM Index (USD) (Net) and MSCI EAFE Index (USD) (Net) at beginning of month investment weights through January 31, 2012; and the MSCI ACW Ex US IM Index (USD) (Net) thereafter.

The **Fixed Income Benchmark** is calculated monthly and consists of the Bloomberg Gov't/Credit Long Term Bond Index through June 30, 2009; and Bloomberg US Agg Bond Index thereafter.

The **Non-Core Fixed Income Benchmark** is calculated monthly using beginning of the month sub-asset class weights within the Non-Core Fixed Income Composite applied to the each sub-asset class primary benchmark return.

The **Real Return Benchmark** is calculated monthly using beginning of the month sub-asset class weights within the Real Return Composite applied to each sub-asset class primary benchmark return.

The **Real Estate Benchmark** is calculated monthly and consists of the NCREIF ODCE Index (AWA) (Gross); interim months assume a 0.00% return. The return is composed of lagged and un-lagged returns in the same proportion as the market value of managers whose returns are being reported on a lagged versus non-lagged basis.

The **Absolute Return Benchmark** is calculated monthly and consists of the HFRI Fund of Funds Diversified Index (1 Mo Lag).

The **Private Equity Benchmark** is set equal to the Composite return.

**Real Estate Performance Comments**

"Privately held real estate fund returns are one-quarter lagged and are provided by Private Edge. Quarterly returns are incorporated in the last month of that particular quarter. The returns for the first two months are zero.

Market values are previous quarter-end values as reported, rolled forward with current cash flows. Returns and market values provided by Private Edge are rolled into their respective Real Estate composite and the Total Plan composite.

Publicly traded real estate fund performance is non-lagged, reflecting monthly fluctuations. Detailed information regarding methodology can be found in the internal TMRS Performance Reporting Policy statement" (State Street Performance Team).

H/2 CP, LP is a publicly traded real estate fund, previously classified as non-public. Performance from Oct 2015 - Dec 2015 is revised to reflect the change in calculation methodology.



PORTLAND

CHICAGO

NEW YORK

**Disclaimer of Warranties and Limitation of Liability** - This document was prepared by RVK, Inc. (RVK) and may include information and data from some or all of the following sources: client staff; custodian banks; investment managers; specialty investment consultants; actuaries; plan administrators/record-keepers; index providers; as well as other third-party sources as directed by the client or as we believe necessary or appropriate. RVK has taken reasonable care to ensure the accuracy of the information or data, but makes no warranties and disclaims responsibility for the accuracy or completeness of information or data provided or methodologies employed by any external source. This document is provided for the client's internal use only and does not constitute a recommendation by RVK or an offer of, or a solicitation for, any particular security and it is not intended to convey any guarantees as to the future performance of the investment products, asset classes, or capital markets.

