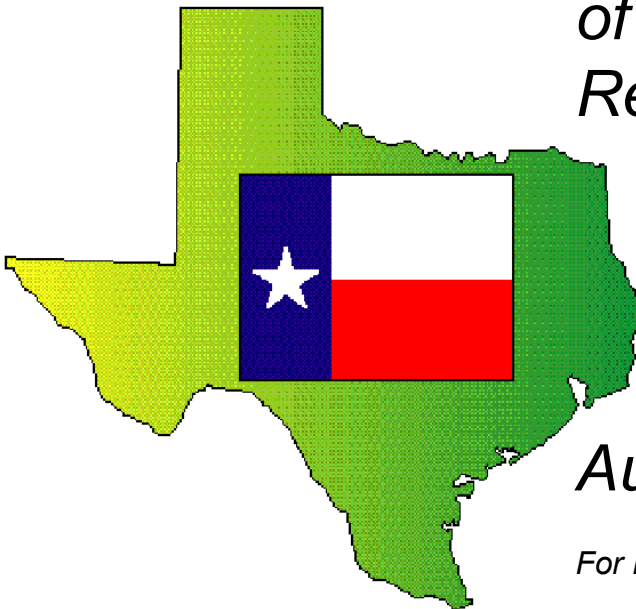


TEXPERS

Report on the Asset Allocation And Investment Performance of Texas Public Employee Retirement Systems

*The Texas Association
of Public Employee
Retirement Systems*



August 2023

For Periods Ending September 30, 2022

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Key Findings

Twenty-six participating members contributed data for the fiscal year 2022 Asset Allocation and Investment Performance of Texas Public Employee Retirement Systems, and represented approximately \$13.41 billion in total assets.

- Participating TEXPERS members' FY 2022 dollar-weighted asset allocation (for the fiscal year ending September 30, 2022) was: equities (domestic, international, and global), 45.53%; alternative strategies, 33.01%; fixed income, 20.84%; and short-term securities/cash/other, 0.61%.
- When measuring investment performance for survey respondents as a group over the 20-year period ending September 30, 2022, the respondents' composite investment return was 8.45%, compared to the average actuarial investment return assumption of 7.21%.
- For the trailing 15-year period ending September 30, 2022, survey respondents' 5.98% outperformed the Global 60/40 portfolio return of 3.28% for the same period.
- For the trailing 10-years ending September 30, 2022, survey respondents' 7.23% return outperformed the Global 60/40 portfolio return of 4.12% for the same period.
- Among all TEXPERS members, the weighted average trailing five-year return was 6.85%, and the weighted average trailing three-year return was 7.04%.

Introduction

This report reviews the asset allocation and investment performance of local pension systems that are members of the Texas Association of Public Employee Retirement Systems (TEXPERS) for the trailing one-, three-, five-, 10-, 15- and 20-year periods ending September 30, 2022. The aggregate TEXPERS and individual systems' asset allocation and investment performance will be examined.

This report aims to document TEXPERS member systems' diversification concerning the types of assets invested in and the investment performance of these systems with respect to their actuarially assumed returns and market benchmarks. This will demonstrate that local systems are being managed in compliance with the "prudent expert" rule, which requires that fiduciaries of the system exercise their duties with the care, skill, prudence, and diligence under the prevailing circumstances that a prudent person acting in a like capacity and familiar with matters of the type would use in the conduct of an enterprise with a like character and like aims.

Individual pension system data in this report was obtained from a May 2023 survey requesting asset allocation and investment return information from TEXPERS members. The member systems responding represent approximately \$13.41 billion in total assets. A copy of the survey is contained in Appendix 1, and a listing of TEXPERS members responding to the survey is contained in Appendix 2. Respondents who agreed to have their names disclosed in this report are listed in Appendix 3. A listing of actuarial return and inflation assumptions is in Appendix 4.

This year this survey was compiled by the Maples Group, continuing a partnership for this annual reporting.

TEXPERS Composite

Asset Allocation

Figure 1 illustrates the average dollar-weighted* asset allocation of survey respondents as a composite group. The Domestic, International and Global Equity asset classes include investments such as U.S. and Non-U.S. common stocks. Fixed Income includes investments such as government and corporate bonds from domestic and international issuers. Alternative Strategies include private equity, real estate, venture capital, marketable alternative strategies, commodities and Diversified Infrastructure.

Figure 1

Market Value \$13.41 Billion
As of September 30, 2022

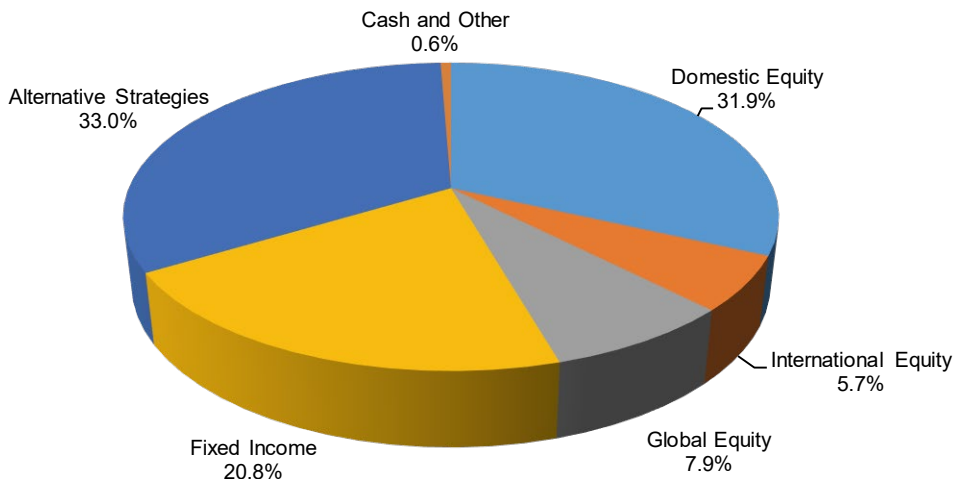
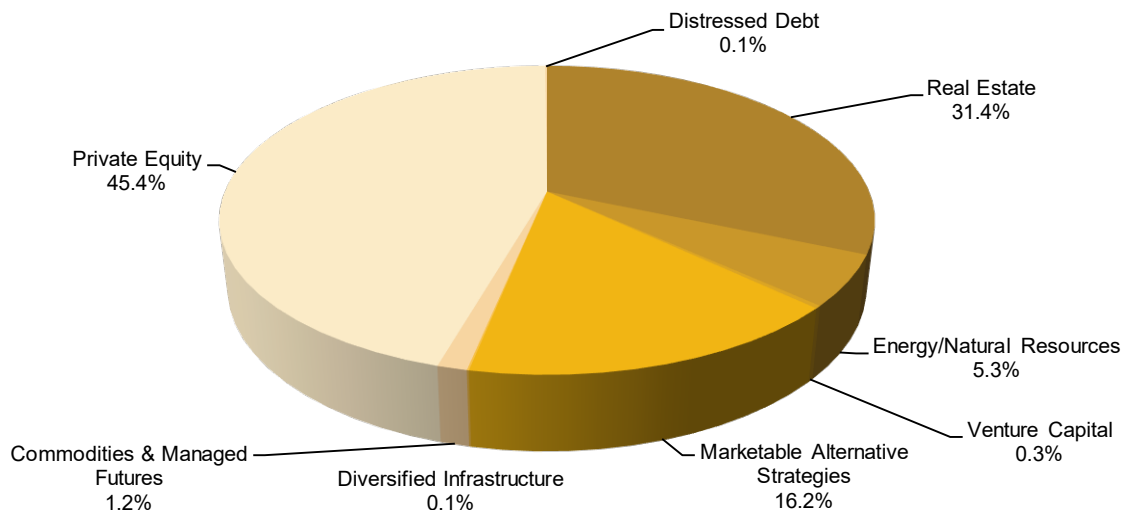


Figure 2

Alternative Strategies Breakout



The asset allocation demonstrates that, in aggregate, the respondents have a level of diversification within the norm for public pension systems.

* Dollar-weighted means that individual responses are weighted according to size of the asset base when calculating the average results – meaning that responses from large participants have a greater impact on average results than those of smaller participants.

Investment Performance

Trailing Period Returns - Table

Table 1

Annualized Returns for the Periods Ending 9/30/2022	One Year	Three Years	Five Years	Ten Years	Fifteen Years	Twenty Years
TEXPERS Weighted Average	-7.1	7.0	6.9	7.2	6.0	8.4
Actuarial Assumption*	7.2	7.2	7.2	7.2	7.2	7.2

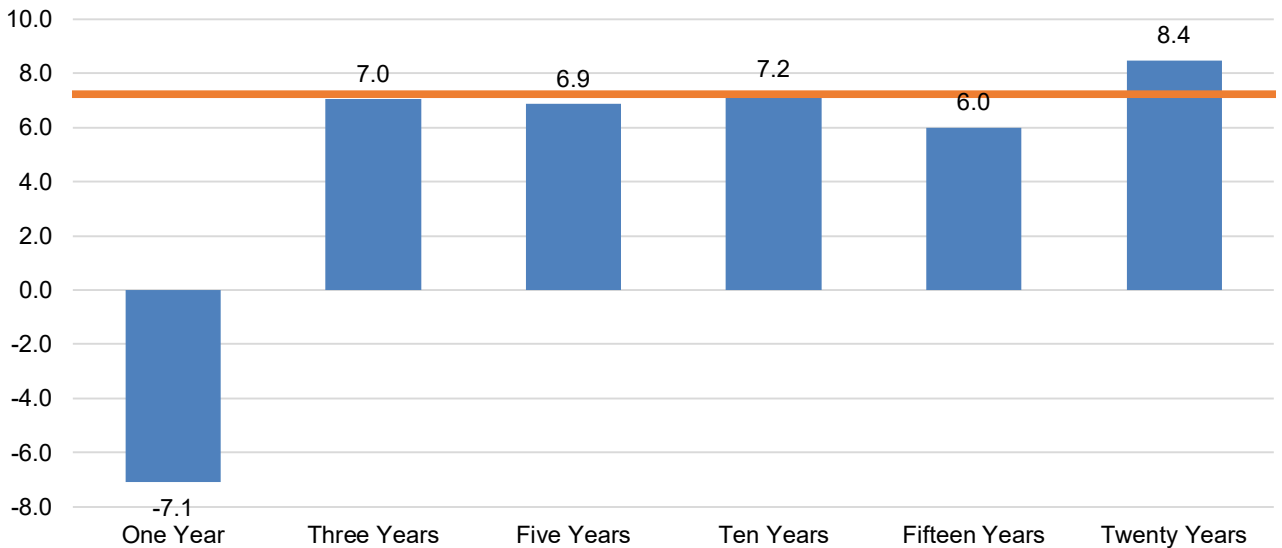
Table 1 and Figure 3 compare the survey respondents' average investment return over the one-, three-, five-, 10-, 15- and 20-year periods ending September 30, 2022 to their average actuarial investment return assumption of 7.2%.

Trailing Period Returns - Chart

Figure 3

Returns vs. Average Actuarial Assumption*

For periods ending September 30, 2022



* This year's actuarial assumption of 7.2% is the average of what was reported among participating TEXPERS members.

Individual Pension Systems

Asset Allocation

Table 2 details percentage allocation to the major asset classes by each survey respondent.

Table 2

	24	27	64	84	20	9	86
Domestic Equity	41.60	34.50	52.93	55.00	36.00	60.52	52.35
Fixed Income	20.70	28.80	25.39	24.50	35.50	25.95	16.96
International Equity	15.10	25.90	20.49	8.20	16.50	4.71	4.54
Global Equity	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alternative Strategies	22.00	10.80	0.00	11.40	12.00	6.10	17.46
Private Equity	0.00	5.00	0.00	3.80	0.00	0.00	0.00
Marketable Alternative Strategies	5.30	0.00	0.00	0.00	0.00	0.00	0.00
Venture Capital	0.00	0.00	0.00	3.80	0.00	0.00	0.00
Real Estate	11.30	5.80	0.00	3.80	12.00	6.10	11.51
Commodities & Managed Futures	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy/Natural Resources	0.00	0.00	0.00	0.00	0.00	0.00	5.95
Diversified Infrastructure	5.40	0.00	0.00	0.00	0.00	0.00	0.00
Distressed Debt	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cash and Other	0.60	0.00	1.19	0.90	0.00	2.72	8.69
Cash, Money Market, Treasuries	0.60	0.00	1.19	0.90	0.00	2.72	8.69
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Individual Pension Systems

Asset Allocation

Table 2 - continued

	31	56	85	50	11	6	12
Domestic Equity	27.37	44.17	45.67	46.30	30.80	38.60	46.00
Fixed Income	20.32	20.71	33.00	21.50	19.50	16.20	31.90
International Equity	22.43	17.19	11.59	12.60	0.00	19.40	12.10
Global Equity	0.00	0.00	2.74	0.00	11.50	2.90	0.00
Alternative Strategies	29.29	16.87	6.00	19.60	38.00	22.40	8.70
Private Equity	19.24	13.82	2.00	0.00	16.90	1.20	2.80
Marketable Alternative Strategies	0.00	0.00	0.00	5.40	7.10	14.50	3.50
Venture Capital	0.00	0.00	2.00	0.00	0.10	0.00	0.00
Real Estate	10.05	3.05	2.00	14.20	11.00	0.00	2.40
Commodities & Managed Futures	0.00	0.00	0.00	0.00	0.60	0.00	0.00
Energy/Natural Resources	0.00	0.00	0.00	0.00	2.30	4.90	0.00
Diversified Infrastructure	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Distressed Debt	0.00	0.00	0.00	0.00	0.00	1.80	0.00
Cash and Other	0.59	1.06	1.00	0.00	0.20	0.50	1.30
Cash, Money Market, Treasuries	0.59	1.06	1.00	0.00	0.20	0.50	1.30
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Individual Pension Systems

Asset Allocation

Table 2 - continued

	28	17	41	51	59	73	44
Domestic Equity	48.60	36.18	33.30	48.50	46.40	35.90	36.42
Fixed Income	36.30	34.29	26.30	8.90	33.70	47.30	34.90
International Equity	7.50	7.42	20.10	6.20	14.80	7.00	7.54
Global Equity	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alternative Strategies	5.30	18.62	18.90	28.40	3.30	4.50	18.83
Private Equity	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marketable Alternative Strategies	5.30	18.62	0.00	3.80	0.00	0.00	18.83
Venture Capital	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Estate	0.00	0.00	18.90	24.60	3.30	4.50	0.00
Commodities & Managed Futures	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy/Natural Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diversified Infrastructure	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Distressed Debt	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cash and Other	2.30	3.49	1.40	8.00	1.80	5.30	2.31
Cash, Money Market, Treasuries	2.30	3.49	1.40	8.00	1.80	0.10	2.31
Other	0.00	0.00	0.00	0.00	0.00	5.20	0.00

Individual Pension Systems

Asset Allocation

Table 2 - continued

	48	61	77	63
Domestic Equity	40.00	37.03	65.42	44.80
Fixed Income	26.00	35.11	25.16	26.80
International Equity	11.00	7.58	6.97	12.50
Global Equity	0.00	0.00	0.00	0.00
Alternative Strategies	16.00	19.10	0.00	15.00
Private Equity	4.00	0.00	0.00	0.00
Marketable Alternative Strategies	7.00	19.10	0.00	6.40
Venture Capital	0.00	0.00	0.00	0.00
Real Estate	5.00	0.00	0.00	8.60
Commodities & Managed Futures	0.00	0.00	0.00	0.00
Energy/Natural Resources	0.00	0.00	0.00	0.00
Diversified Infrastructure	0.00	0.00	0.00	0.00
Distressed Debt	0.00	0.00	0.00	0.00
Cash and Other	7.00	1.18	2.45	0.90
Cash, Money Market, Treasuries	7.00	1.18	2.45	0.90
Other	0.00	0.00	0.00	0.00

Investment Performance

Table 3 lists investment returns* for survey respondents over the one-, three-, five-, 10-, 15- and 20-year periods ending September 30, 2022. For comparison purposes the benchmark of 60% of the MSCI ACWI equity index and 40% of the Bloomberg Barclays Global Aggregate fixed income index is represented by the "Index".

Table 3

Fund	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
24	-17.03%	n/a	n/a	n/a	n/a	n/a
27	-20.44%	1.48%	3.19%	5.30%	5.04%	n/a
64	-19.85%	n/a	n/a	n/a	n/a	n/a
84	-17.45%	n/a	n/a	n/a	n/a	n/a
20	-15.96%	2.42%	3.41%	5.75%	5.09%	6.83%
9	-11.75%	3.56%	3.43%	n/a	n/a	n/a
86	-8.01%	n/a	n/a	n/a	n/a	n/a
31	-12.98%	4.61%	5.15%	6.99%	5.54%	8.12%
56	-18.33%	1.36%	5.25%	6.03%	n/a	n/a
85	-15.59%	-0.20%	2.18%	4.11%	3.41%	n/a
50	-14.47%	n/a	n/a	n/a	n/a	n/a
47	-2.12%	n/a	n/a	n/a	n/a	n/a
11	-6.73%	8.11%	7.61%	7.47%	6.21%	8.68%

Fund	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
6	-15.92%	3.81%	4.22%	5.64%	4.44%	6.28%
12	-17.15%	1.79%	3.50%	3.95%	3.25%	4.93%
28	-17.26%	1.39%	2.56%	4.80%	3.43%	n/a
17	-16.94%	1.40%	2.48%	4.78%	4.03%	n/a
41	-15.02%	n/a	n/a	n/a	n/a	n/a
51	-12.49%	n/a	n/a	n/a	n/a	n/a
59	-19.11%	1.55%	2.65%	5.68%	n/a	n/a
73	-16.35%	n/a	n/a	n/a	n/a	n/a
44	-17.11%	1.39%	2.55%	4.83%	4.12%	6.52%
48	-14.10%	3.75%	4.29%	4.79%	4.38%	6.46%
61	-17.07%	n/a	n/a	n/a	n/a	n/a
77	-11.71%	3.50%	4.01%	n/a	n/a	n/a
63	-15.10%	3.76%	4.67%	6.16%	n/a	n/a
Index	-20.41%	0.15%	1.96%	4.12%	3.28%	6.08%

*All investment returns are net-of-fee, except for Fund 14 and Fund 25 that reported only gross returns.

Five Year Return versus Standard Deviation

Figure 4

For the Five Years Ending September 30, 2022

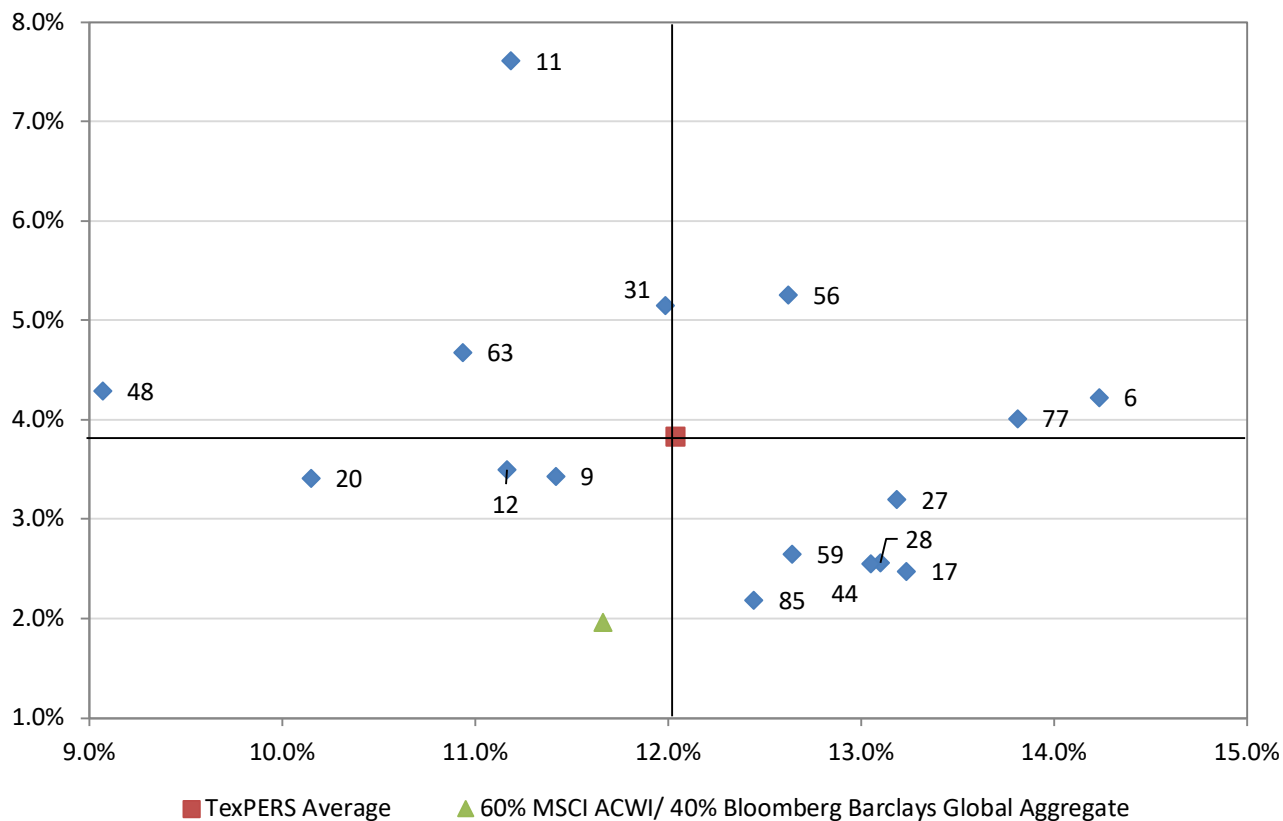


Figure 4 shows the five-year return and standard deviation characteristics of the individual TEXPERS survey respondents versus two benchmarks. The first benchmark defines the four quadrants and is the TEXPERS average five-year return, representing the average return of the respondents to this survey. The second benchmark is a combination of 60% of the MSCI ACWI equity index and 40% of the Bloomberg Barclays Global Aggregate fixed income index. Annualized return and standard deviation are based on quarterly returns for the period. Standard deviation is a measure of the dispersion or volatility of the quarterly returns around their average value.

The points representing the performance of the TEXPERS survey respondents are located in four quadrants of the chart. Four of the respondents are located in the most desirable northwest quadrant, indicating higher returns with less standard deviation than the benchmark. Six respondents are located in the northeast or southwest quadrants, indicating reasonable return versus standard deviation trade-offs. That is, they have either a higher return with a higher standard deviation, or a lower return with a lower standard deviation, than the benchmark. Six respondents are located in the least desirable southeast quadrant, where return is lower and standard deviation is higher than the benchmark.

Ten Year Return versus Standard Deviation

Figure 5

For the Ten Years Ending September 30, 2022

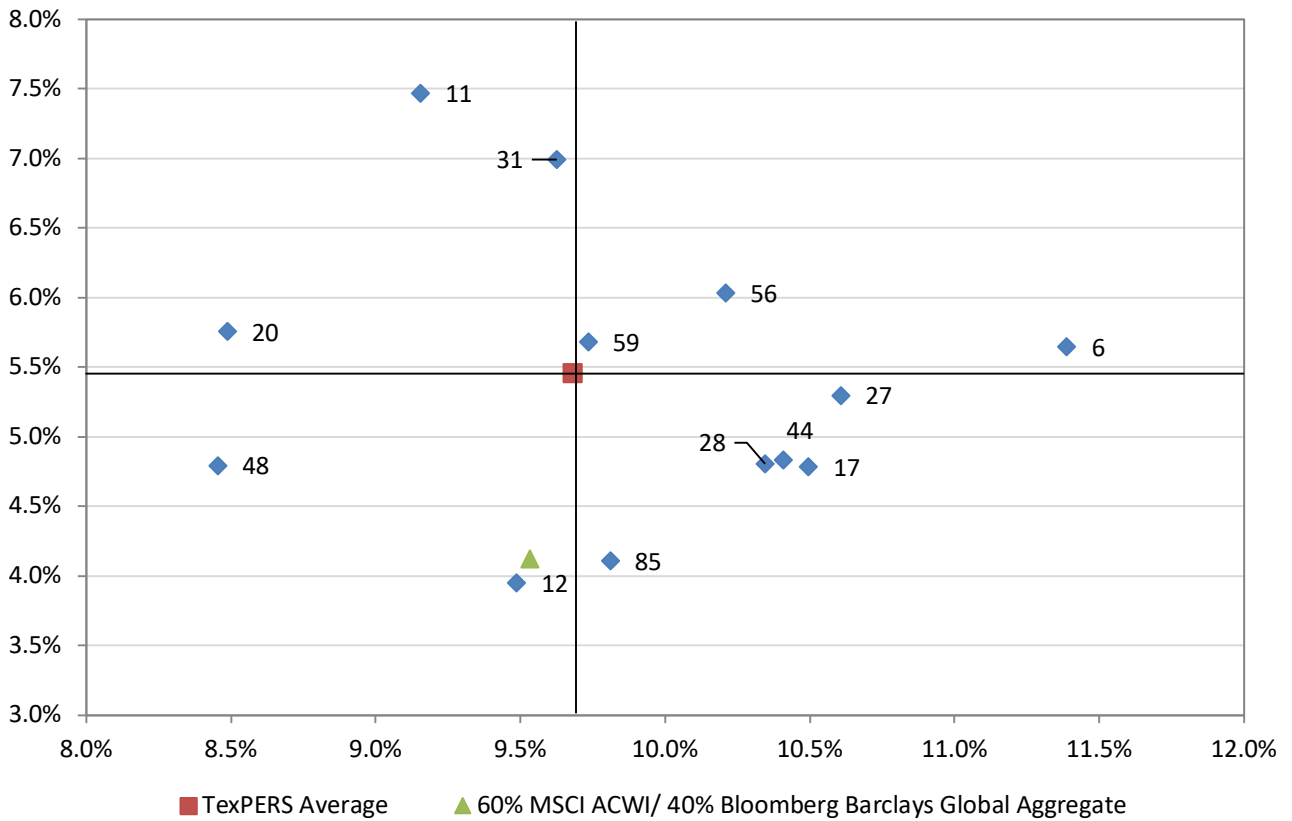


Figure 5 shows 10-year return and standard deviation characteristics of individual TEXPERS survey respondents versus two benchmarks. The first benchmark defines the four quadrants and is the TEXPERS average 10-year return, representing the average return of the respondents to this survey. The second benchmark is a combination of 60% of the MSCI ACWI equity index and 40% of the Bloomberg Barclays Global Aggregate fixed income index. Annualized return and standard deviation are based on quarterly returns for the period. Standard deviation is a measure of the dispersion or volatility of the quarterly returns around their average value.

The points representing the performance of the TEXPERS survey respondents are located in four quadrants of the chart. Three of the respondents are located in the most desirable northwest quadrant, indicating higher returns with less standard deviation than the benchmark. Five respondents are located in the northeast or southwest quadrants, indicating reasonable return versus standard deviation trade-offs. That is, they have either a higher return with a higher standard deviation, or a lower return with a lower standard deviation, than the benchmark. Five respondents are located in the least desirable southeast quadrant, where return is lower and standard deviation is higher than the benchmark.

Fifteen Year Return versus Standard Deviation

Figure 6

For the Fifteen Years Ending September 30, 2022

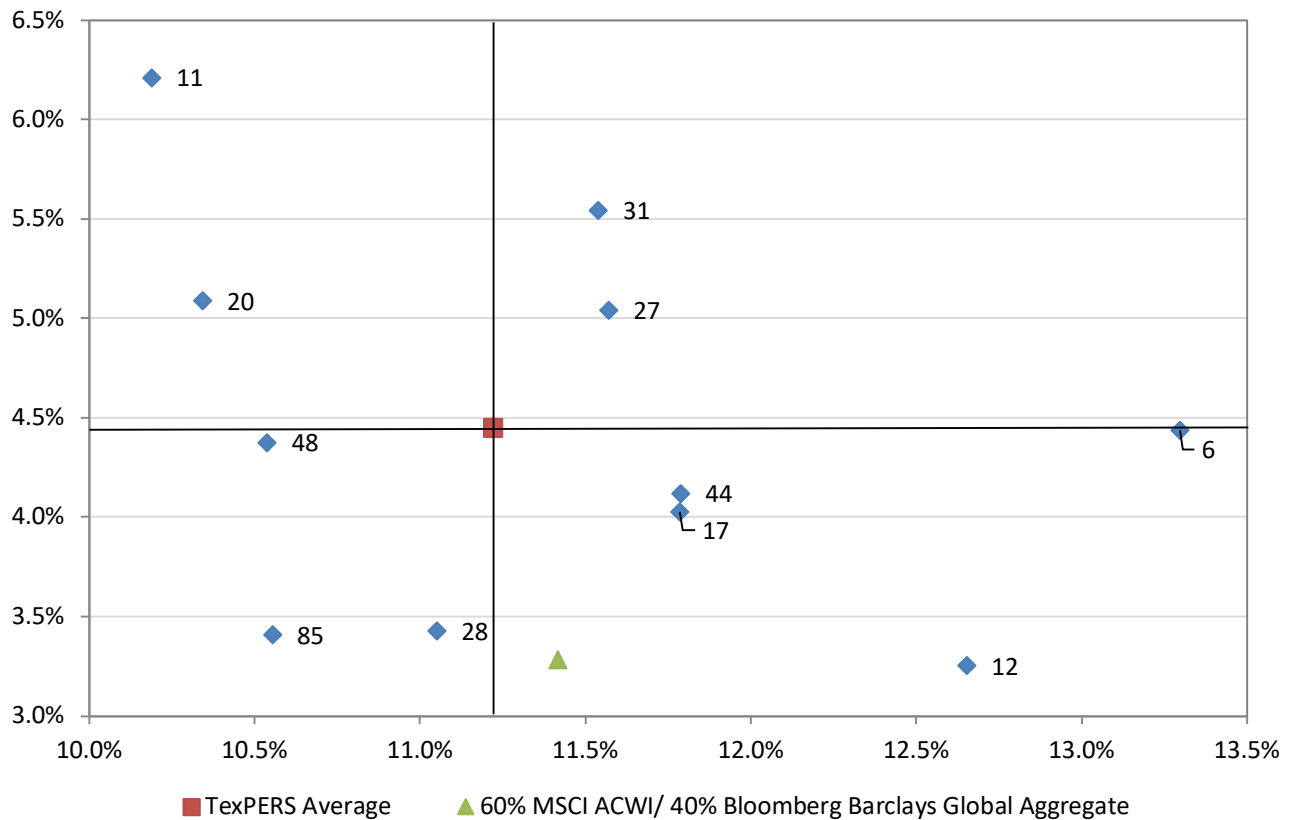


Figure 6 shows 15-year return and standard deviation characteristics of individual TEXPERS survey respondents versus two benchmarks. The first benchmark defines the four quadrants and is the TEXPERS average 15-year return, representing the average return of the respondents to this survey. The second benchmark is a combination of 60% of the MSCI ACWI equity index and 40% of the Bloomberg Barclays Global Aggregate fixed income index. Annualized return and standard deviation are based on quarterly returns for the period. Standard deviation is a measure of the dispersion or volatility of the quarterly returns around their average value.

The points representing the performance of the TEXPERS survey respondents are located in all four quadrants of the chart. Two respondents are located in the most desirable northwest quadrant, indicating higher returns with less standard deviation than the benchmark. Five respondents are located in the northeast or southwest quadrants, indicating reasonable return versus standard deviation trade-offs. That is, they have either a higher return with a higher standard deviation, or a lower return with a lower standard deviation, than the benchmark. Four respondents are located in the least desirable southeast quadrant, where return is lower and standard deviation is higher than the benchmark.

Twenty Year Return versus Standard Deviation

Figure 7

For the Twenty Years Ending September 30, 2022

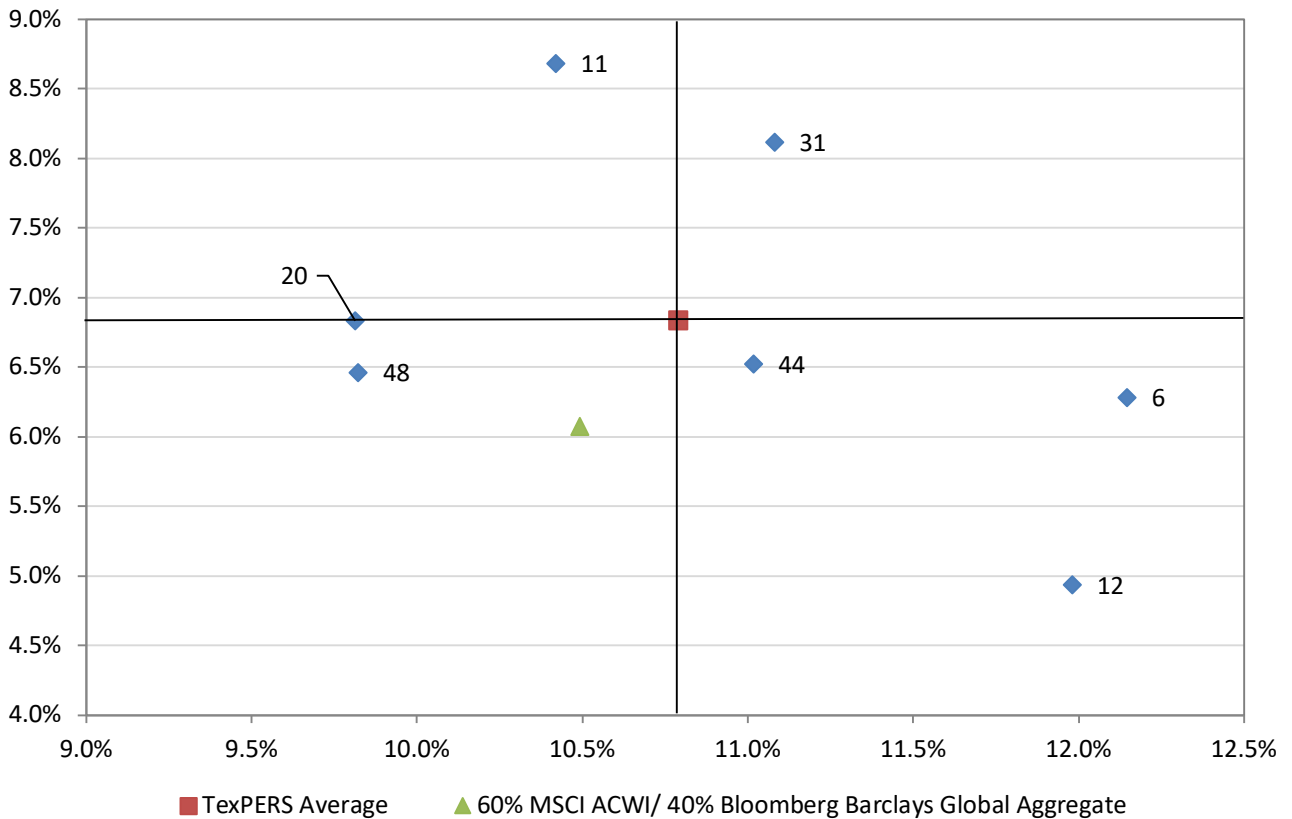


Figure 7 shows 20-year return and standard deviation characteristics of individual TEXPERS survey respondents versus two benchmarks. The first benchmark defines the four quadrants and is the TEXPERS average 20-year return, representing the average return of the respondents to this survey. The second benchmark is a combination of 60% of the MSCI ACWI equity index and 40% of the Bloomberg Barclays Global Aggregate fixed income index. Annualized return and standard deviation are based on quarterly returns for the period. Standard deviation is a measure of the dispersion or volatility of the quarterly returns around their average value.

The points representing the performance of the TEXPERS survey respondents are located in all four quadrants of the chart. Two respondents are located in the most desirable northwest quadrant, indicating higher returns with less standard deviation than the benchmark. Two respondents are located in the northeast or southwest quadrants, indicating reasonable return versus standard deviation trade-offs. That is, they have either a higher return with a higher standard deviation, or a lower return with a lower standard deviation, than the benchmark. Three respondents are located in the least desirable southeast quadrant, where return is lower and standard deviation is higher than the benchmark.

Appendix 1

Asset Allocation and Investment Performance Study of TEXPERS Members

TEXPERS 2022 SURVEY		
Name of Plan		
Total Plan Rates of Return (%)		
Quarter Ending	Gross Return (if available)	Net Return
September 30, 2022		
June 30, 2022		
March 31, 2022		
December 31, 2021		
Actuarial Investment Return Assumption (%)		
Inflation Assumption (%)		
Total Fund Value (\$)		
Asset Allocation (total should equal 100%)		
	Percentage Invested at 09/30/2022	
Domestic Equities		
Total Domestic Equities	0.00%	
Active (Include REITs)		
Index (Passive/Enhanced)		
Multi-Strategy Equity Fund		
International Equities		
Total International Equities	0.00%	
Active MSCI EAFE®		
Passive/Index MSCI EAFE®		
Emerging Markets		
Global Equities		
Total Global Equities	0.00%	
Active MSCI AC World®		
Passive/Index MSCI AC World®		
Fixed Income		
Total Fixed Income	0.00%	
Domestic (U.S.) Investment Grade (Active) (Include TIPS)		
Domestic (U.S.) Investment Grade (Passive)		
Domestic (U.S.) Non-Investment Grade (Active or Passive)		
International (Non-U.S.) Investment Grade (Active or Passive)		
Emerging Markets (Active or Passive)		
Multi-Strategy Bond Fund		
Other Credit Strategies		
Alternative Strategies		
Total Alternative Strategies	0.00%	
Real Estate (excl REITs)		
Venture Capital		
Private Equity (LBOs, Mezzanine, M&A Funds)		
Commodities & Managed Futures		
Marketable Alternative Strategies (Hedge Funds, Derivatives)		
Energy/Natural Resources		
Diversified Infrastructure		
Distressed Debt		
Cash and Other		
Total Cash and Other	0.00%	
Cash, Money Market, Treasuries		
Other (Please Specify Below)		
TOTAL	0.00%	
Ok to identify your fund by name in the annual performance report? (Y/N)		

Appendix 2

List of TEXPERS Survey Respondents

Abilene Firemen's Relief & Retirement Fund

Brownwood Firemen's Relief & Retirement Fund

Capital Metro Retirement Plan for StarTran, Inc. Bargaining Unit Employees

City of Galveston Employees Retirement Fund

Corpus Christi Firefighters' Retirement System

Conroe Firefighter Relief & Retirement Fund

Denton Firemens Relief and Retirement Fund

El Paso Firemen & Policemen's Pension Fund

Galveston Firefighter's Pension Fund

Galveston Retirement Plan for Police

Harlingen Firemen's Relief & Retirement Fund

Houston Municipal Employees Pension System

Houston Police Officers' Pension System

Laredo Firefighters Retirement System

Longview Firefighters' Relief & Retirement Fund

Lufkin Firemen's Relief & Retirement Fund

Marshall Firemen's Relief & Retirement Fund

MTA of Harris County Workers Non Union Pension Plan

Odessa Firefighters Relief & Retirement Fund

Port Arthur Firemen's Relief & Retirement Fund

Port of Houston Authority

Sweetwater Firemen's Relief & Retirement Fund

Texarkana Firemen's Relief & Retirement Fund

Texas City Firemen's Relief & Retirement Fund

Weslaco Firemen's Relief & Retirement Fund

Wichita Falls Firemens Relief & Retirement Fund

Appendix 3

Respondent Fund Number – Name Cross Reference

Number	Name
27	Brownwood Firemen's Relief & Retirement Fund
64	Capital Metro Retirement Plan for StarTran, Inc. Bargaining Unit Employees
84	City of Galveston Employees Retirement Fund
20	Corpus Christi Firefighters' Retirement System
31	El Paso Firemen & Policemen's Pension Fund
56	Galveston Firefighter's Pension Fund
85	Galveston Retirement Plan for Police
50	Harlingen Firemen's Relief & Retirement Fund
11	Houston Police Officers' Pension System
6	Laredo Firefighters Retirement System
28	Lufkin Firemen's Relief & Retirement Fund
17	Marshall Firemen's Relief & Retirement Fund
41	MTA of Harris County Workers Non Union Pension Plan
51	Odessa Firefighters Relief & Retirement Fund
59	Port Arthur Firemen's Relief & Retirement Fund
44	Sweetwater Firemen's Relief & Retirement Fund
48	Texarkana Firemen's Relief & Retirement Fund
61	Texas City Firemen's Relief & Retirement Fund
77	Weslaco Firemen's Relief & Retirement Fund
63	Wichita Falls Firemens Relief & Retirement Fund

Appendix 4

Respondent Fund Number – Return Assumptions

Fund	Nominal	Inflation	Real
24	7.50%	3.00%	4.50%
27	7.00%	2.85%	4.15%
64	6.50%		
84	7.25%	2.75%	4.50%
20	7.25%	2.75%	4.50%
9	7.50%	2.60%	4.90%
86	6.75%	3.00%	3.75%
31	7.75%	3.00%	4.75%
56	7.50%	2.85%	4.65%
85	7.00%		
50	7.75%	2.50%	5.25%
47	7.00%	2.25%	4.75%
11	7.00%	2.30%	4.70%

Fund	Nominal	Inflation	Real
6	7.50%		
12	7.50%	3.00%	4.50%
28	7.25%	2.75%	4.50%
17	7.25%	3.75%	3.50%
41	6.25%	2.30%	3.95%
51	7.00%	3.00%	4.00%
59	7.25%	2.75%	4.50%
73	6.00%	2.40%	3.60%
44	8.00%	3.00%	5.00%
48	7.50%	2.90%	4.60%
61	7.25%	3.00%	4.25%
77	7.25%	3.25%	4.00%
63	7.75%	3.00%	4.75%