

Investment

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Report on Investment Activity

May 2, 2018

Board of Trustees
Texas Municipal Retirement System
c/o Mr. David Gavia
Executive Director
P.O. Box 149153
Austin, Texas 78714-9153



Dear Board Members,

The U.S. economy grew by 2.6 percent in 2017, with real gross domestic production increasing as a result of growth in consumer spending, business investment, government spending, and housing investment.¹

The U.S. economy added approximately 2.2 million jobs to nonfarm payrolls and the unemployment rate declined from 4.7% to 4.1%.² Inflation, as measured by the Consumer Price Index, was 2.1% during the year.³ The Federal Reserve increased policy rates three times over the year, with the target range of Fed Funds ending the year at 1.25% to 1.50%. Treasury yields also traded higher at the end of the year as a result of expectations for U.S. fiscal policy, and increased concerns regarding inflation risk amidst the tax stimulus policy and the related expected increase in U.S. Treasury issuance.

Global equity markets traded higher in 2017, with the broad U.S. equity market returning 21.1% and the broad international equity market returning 27.8%, as measured by the Russell 3000 Index and MSCI All Country World excluding U.S. Investable Market Index, respectfully. Emerging markets also performed well, returning 37.3%, while fixed income securities returned 3.5% (Barclays U.S. Aggregate Bond Index). Relatedly, most traditional domestic bond index sectors were positive for the year, including credit and TIPS.

The market value of the Texas Municipal Retirement System's (the "System") investments was \$28.4 billion as of December 31, 2017.⁴ The System's current actuarial assumed rate of return is 6.75%, which represents the System's long-term return goal. The System's overall gross of fees investment return over the past year was 14.27% and the three-year annualized return was 7.19%. The five-year annualized return was 7.46%, and ten-year annualized return was 6.71%.

The System's portfolio continued to be diversified over the year, amidst the ongoing process of implementing the long-term strategic asset allocation. The portfolio is invested across major segments of the U.S. and international equity markets (both developed and emerging), and the fixed income portfolio consists of core and non-core investments. The System also invests in real return assets, absolute return strategies, private equity, and real estate. We believe these investment allocations are consistent with both Investment Policy guidelines and unique legal statutes that govern TMRS.

¹ Based on data provided by the U.S. Department of Commerce, Bureau of Economic Analysis.

² Based on data provided by the U.S. Department of Labor, Bureau of Labor Statistics.

³ Ibid.

⁴ As reported by TMRS' custodian State Street Bank & Trust. Market value includes accruals and is adjusted for open trades.

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Over the past year, more specifically, TMRS made measured progress in further diversifying its assets through the continued implementation of its long-term Strategic Target Allocation. Indeed, diversification within the non-core fixed income progressed with the funding of high yield, emerging market debt, and private credit managers.

As an additional component of the System's deliberate diversification strategy and schedule, the Board previously hired specialty consultants for expertise in selecting and monitoring private equity, hedge fund, and real asset investments. Across these segments, allocations continued towards targets with the funding of a number of real return, real estate, absolute return, and private equity managers over 2017. Commitments to these alternative asset classes, broadly, are close to relative targets. The one exception is private equity; however, the Board is actively engaged with staff and consultants to ensure the target is diligently reached.

We believe that the actions taken over recent years, and the future plans under consideration by the Board to diversify the System's investments, will improve the risk and return profile of the System. The System's investment policies, goals, and objectives, as well as the performance of its assets and transaction costs are regularly monitored and evaluated by TMRS Staff, the Board, and RVK, Inc. These evaluations include analysis of the investment management firms and the custodial bank that serve the System.

The System's publicly traded assets managed through separate accounts are held in custody at State Street Bank, with the majority of equity investments held at Northern Trust through commingled funds. Absolute return, private real estate, and private equity fund assets are held by their respective general partners. Market values and returns referenced above are based upon statements prepared by State Street Bank. Their statements are, to the best of our knowledge, reliable and accurate. Investment performance is calculated using a time-weighted rate of return methodology (gross of fees) based upon market values and cash flows.

Maintaining focus on the long-term strategy is critical to the growth and sustainability of the assets entrusted to the Board's care by the System's employee participants. We expect the Board's continued high standard of care for these assets and commitment to diversification will help facilitate the System in meeting its long-term goals and objectives.

Sincerely,

A handwritten signature in blue ink, appearing to read "Rebecca A. Gratsinger".

Rebecca Gratsinger, CFA
Chief Executive Officer

Outline of Investment Policies

The TMRS Board of Trustees approves the Investment Policy Statement (IPS), which governs the investment of assets for TMRS and is established to provide a framework for the management of those assets. It sets forth the Board's investment objectives and tolerance for investment risk. The IPS outlines objectives, benchmarks, restrictions and responsibilities so that members of the Board, TMRS staff, investment managers, consultants, and TMRS stakeholders clearly understand the policies, goals and objectives, and risks connected with the TMRS investment program.

Investment Objectives

The overall objective of TMRS' investment program is to ensure that members, retirees, and beneficiaries are provided with the benefits they have been promised by their employers at a reasonable and predictable cost to the employers. Assets will be invested for total return with appropriate consideration for portfolio volatility (risk) and liquidity. Emphasis is on both capital appreciation as well as the production of income in order to satisfy the short-term and long-term funding needs of TMRS. Total return includes dividends, interest, and realized and unrealized capital appreciation.

General Investment Policies

A. Standard of Prudence Applicable. All participants in the investment process will act responsibly. The standard of prudence to be applied by the Board and investment staff is as follows:

1. In satisfying this standard, the Board and staff shall exercise the degree of judgment and care, under the circumstances that persons of prudence, discretion, and intelligence exercise in the management of their own affairs, considering the probable income from the securities and probable safety of their capital and in consideration of the purposes, terms, distribution requirements, and other circumstances of the trust.
2. Investment and management decisions respecting individual assets will be evaluated not in isolation but in the context of the trust portfolio as a whole and as a part of an overall investment strategy having risk and return objectives reasonably suited to the trust.

B. Conflict of Interest Prohibited. Members of the Board of Trustees, investment staff, investment managers, and consultants involved in the investment of TMRS assets will refrain from personal business activity that could conflict with the proper execution and management of the TMRS investment program, or that could impair their ability to make impartial recommendations and decisions. These parties are required to reveal all relationships that could create or appear to create a conflict of interest in their unbiased involvement in the investment process.

Portfolio Management

The Board of Trustees recognizes that the most important determinant of long-term return and risk is the asset allocation decision. The Board's strategic target allocation is intended to reflect, and be consistent with, the return objective and risk tolerance expressed in the IPS. It is designed to meet or exceed the Board's objectives at a controlled level of risk and liquidity that is acceptable to the Board. In establishing its risk tolerance, the Board considers its ability to withstand short and intermediate-term volatility in investment performance and fluctuations in the financial condition of the fund.

The strategic target allocation and acceptable ranges as determined by the Board to facilitate the achievement of long-term investment objectives within acceptable risk parameters are as follows:

Asset Allocation Table • Strategic Targets

Asset Class	Minimum %	Target %	Maximum %
U.S. Equities	12.5%	17.5%	22.5%
International Equities	12.5%	17.5%	22.5%
Core Fixed Income	5.0%	10.0%	15.0%
Non-Core Fixed Income	15.0%	20.0%	25.0%
Real Estate	5.0%	10.0%	15.0%
Real Return	5.0%	10.0%	15.0%
Absolute Return	5.0%	10.0%	15.0%
Private Equity	0.0%	5.0%	10.0%
Cash Equivalents	0.0%	0.0%	10.0%

The Board authorizes implementation to this strategic target allocation in stages. During the transition toward the strategic target allocation, certain asset classes will exceed maximum limits and will serve as either the funding source for new strategies or portfolios, or as a proxy pending implementation of certain allocations.

To ensure that the risk tolerance remains appropriate, the strategic target allocation will be reviewed at least annually for reasonableness relative to significant economic and market changes or to changes in the Board's long-term goals and objectives. A formal asset allocation study will be conducted at least every three years to verify or amend the targets, and a formal pension financial (asset-liability) study will be conducted at least every five years.

The Board has chosen to adopt a rebalancing policy that is governed by allocation ranges rather than time periods. The ranges, specified in the table above, are a function of the volatility of each asset class and the proportion of the total fund allocated to the asset class. The goal of the rebalancing policy is to ensure that the integrity of the Strategic Target Allocation is preserved through a disciplined process that allows investment staff the flexibility to rebalance the portfolio between managers within an asset class and between asset classes, within the Board approved ranges, to adjust for market movements and consider current market conditions, or valuations, in portfolio allocations.

Performance measurement will be based on total rate of return and will be monitored over a sufficient time period to reflect the investment expertise of the manager(s) over one full market cycle, or five years, whichever is less. Performance results and evaluation relative to objectives will be reported to the Board on a quarterly basis. Specific performance objectives include, but may not be limited to, the following:

- a. Achieve a total rate of return over rolling 5-year periods meeting or exceeding the Actuarial Return Assumption.
- b. Exceed an appropriate benchmark reflective of asset class participation over rolling 5-year periods (i.e., actual allocation index during the implementation period and policy index once fully implemented).

Outline of Investment Policies

Continued

In December 2017, the Board selected the following Policy Benchmark and Policy Index, by asset class, for implementation January 1, 2018:

Asset Class	Policy Benchmark	Asset Class Goal	Policy Index
U.S. Equities	Russell 3000 Index	Benchmark	17.5%
International Equities	MSCI ACW-ex US IMI (USD), net	Benchmark	17.5%
Core Fixed Income	Bloomberg Barclays US Aggregate Bond Index	Benchmark	10.0%
Non-Core Fixed Income	Rollup of Underlying Manager Benchmarks	50% Bank of America Merrill Lynch US High Yield Constrained Index; 50% Credit Suisse Levered Loan Index	20.0%
Real Estate	NCREIF- ODCE Index	CPI + 5%	10.0%
Real Return	Rollup of Underlying Manager Benchmarks	CPI + 4%	10.0%
Absolute Return	HFRI Fund of Funds: Diversified Index	Cash (3-month Libor) + 5%	10.0%
Private Equity	Rollup of Underlying Manager Benchmarks	Russell 3000 + 3%	5.0%
Cash Equivalents	30 Day T-Bill	Benchmark	0.0%

Securities Lending

The IPS allows for the System's participation in a securities lending program, the objective of which is to generate incremental income from overnight and certain term loans of securities held, utilizing a high-quality and reasonably conservative cash collateral reinvestment program that safeguards the return of principal and maintains adequate daily liquidity to support trade settlement activity and portfolio restructuring activities.

The securities lending agent must:

- a. Be experienced in the operation of a fully secured securities lending program;
- b. Indemnify the System against any loss resulting from borrower default or from its own failure to properly execute its responsibilities under the lending agreement;
- c. Maintain a favorable report of the controls at a service organization (SOC report) in accordance with the standards established by the AICPA or ISAE 3402, reflecting appropriate risk controls;
- d. Be rated at least "A" by two of the following nationally recognized rating services: Moody's Investors Service, Standard and Poor's Corporation, and Fitch Ratings; and
- e. Maintain Tier 1 and Total Capital Ratios of 7% and 10%, respectively.

The securities lending agent is responsible for in-depth ongoing credit review of borrowers, independent of the agent's securities lending decision-makers. The lending agent cannot make loans to borrowers who do not appear on TMRS' approved borrower list. The fair value of TMRS' securities loans outstanding to an approved borrower at the end of each business day should be no greater than 25% of the total fair value of TMRS' securities on loan.

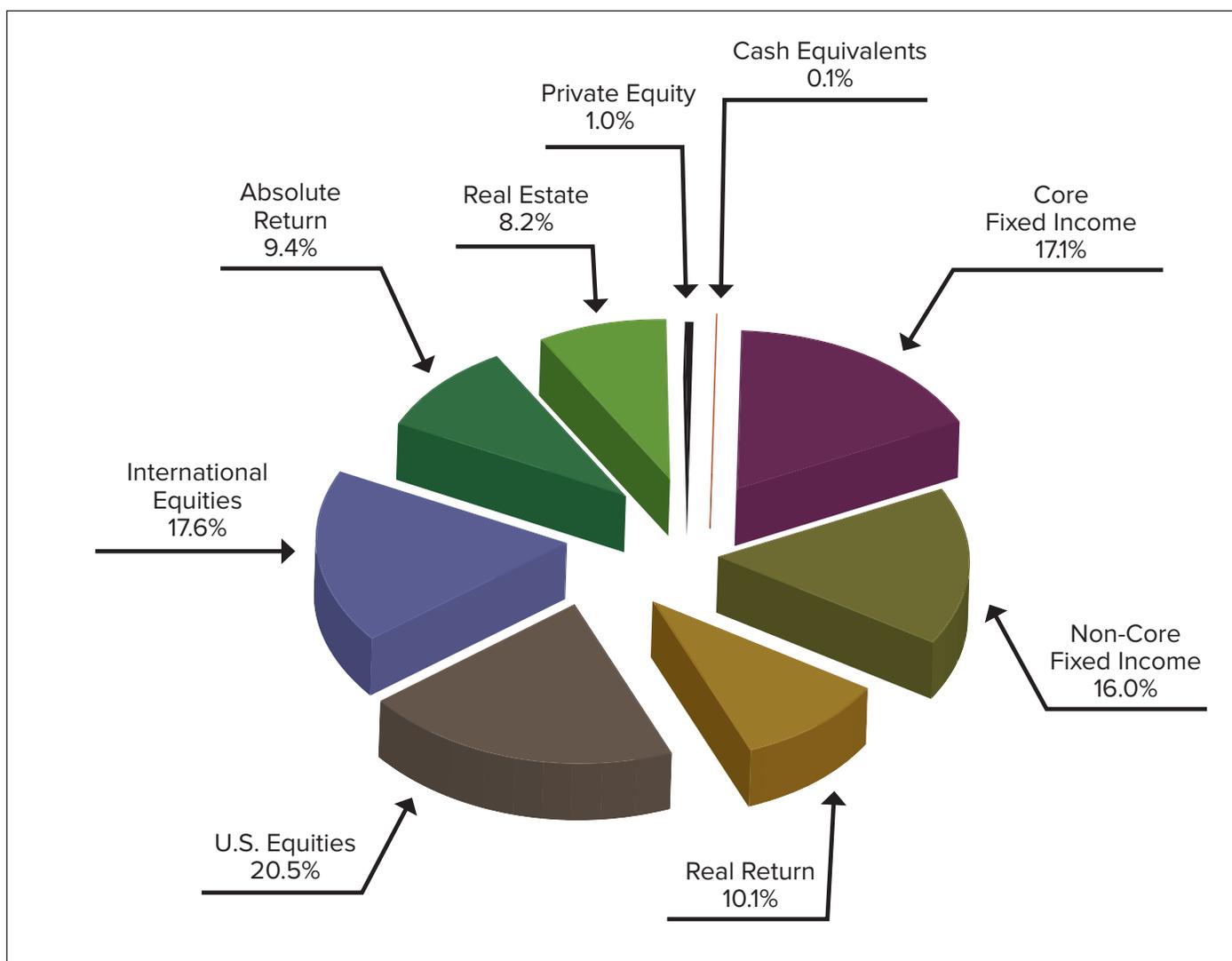
The securities lending agent shall collect and maintain proper overcollateralization as follows:

- a. Domestic (U.S. domiciled and Non-U.S. domiciled issued in U.S. dollars) securities: Initial Margin of 102%
- b. International (non-U.S. domiciled) securities: Initial Margin of 105%

Collateral may be in the form of either Cash (U.S. dollars) or U.S. government securities. Cash collateral may be reinvested through a pooled fund managed by the Securities Lending Agent or through a separately managed account structure.

As of December 31, 2017 and 2016, TMRS did not have an active securities lending program.

December 31, 2017 Asset Allocation



Summary of Investments

	As of December 31, 2017		As of December 31, 2016	
	Fair Value	Percent of Total Fair Value	Fair Value	Percent of Total Fair Value
Cash Equivalents				
Short-term investment funds	\$ 23,541,358	0.1 %	\$ 29,042,008	0.1 %
Total cash equivalents	23,541,358	0.1	29,042,008	0.1
Core Fixed Income				
Short-term investments:				
Short-term investment funds	85,371,782	0.3	74,195,712	0.3
Certificates of Deposit	23,690,000	0.1	360,677,858	1.4
Repurchase agreements	356,300,000	1.2	419,700,000	1.6
Broker collateral	14,000	—	1,444,000	—
Fixed-income securities:				
U.S. Treasury bonds/notes	1,415,028,750	4.9	993,210,007	3.8
U.S. Treasury inflation-protected	90,706,655	0.3	140,064,225	0.5
U.S. government agency	47,610,687	0.2	106,551,152	0.4
Municipal	121,091,656	0.4	147,813,124	0.6
Corporate	1,452,337,396	5.0	1,703,778,974	6.6
Residential mortgage-backed	1,175,479,569	4.1	1,388,405,075	5.4
Commercial mortgage-backed	68,066,442	0.2	79,168,912	0.3
Other asset-backed	24,358,761	0.1	39,642,433	0.2
Foreign government	76,036,769	0.3	80,088,122	0.3
Derivatives contracts	(51,250)	—	(45,422)	—
Total core fixed income	4,936,041,217	17.1	5,534,694,172	21.4
Non-Core Fixed Income				
Short-term investment funds	60,306,768	0.2	99,300,232	0.4
Fixed-income securities:				
Corporate	302,662,317	1.1	—	0.0
Residential mortgage-backed	52,999,320	0.2	—	0.0
Commercial mortgage-backed	668,353,050	2.3	655,688,575	2.5
Other asset-backed	96,964,011	0.3	29,304,982	0.1
Non-core fixed income funds	3,450,476,735	11.9	1,296,080,388	5.0
Derivatives contracts	50,568	—	—	—
Total non-core fixed income	4,631,812,769	16.0	2,080,374,177	8.0

Summary of Investments

Real Return						
Short-term investment funds	18,904,092	0.1	16,781,293	0.1		
Fixed-income securities						
U.S. Treasury inflation-protected	250,060,044	0.9	241,623,859	1.0		
Corporate	249,168,613	0.9	165,640,110	0.6		
Foreign government	16,244,604	—	46,279,409	0.2		
Foreign government inflation-linked	419,439,741	1.4	344,375,223	1.3		
Equity securities	841,871,621	2.9	551,699,671	2.1		
Real return funds	1,131,358,329	3.9	913,479,737	3.5		
Derivatives contracts	(3,150,409)	—	1,617,663	—		
Total real return	2,923,896,635	10.1	2,281,496,965	8.8		
U.S. Equities						
Short-term investment funds	62,861,666	0.2	37,766,870	0.1		
Equity securities	1,689,629,299	5.8	1,429,719,945	5.6		
Commingled funds	4,180,584,423	14.5	5,261,523,838	20.4		
Total U.S. equities	5,933,075,388	20.5	6,729,010,653	26.1		
International Equities						
Short-term investment funds	46,018,418	0.2	30,412,023	0.1		
Equity securities	1,571,892,360	5.4	1,170,292,263	4.5		
Commingled funds	3,456,287,604	12.0	2,926,222,898	11.3		
Derivatives contracts	8,146	—	(2,893)	—		
Total international equities	5,074,206,528	17.6	4,126,924,291	15.9		
Absolute Return						
Direct hedge funds	2,121,398,148	7.3	1,236,570,850	4.8		
Hedge fund-of-funds	606,635,162	2.1	1,512,598,855	5.9		
Total absolute return	2,728,033,310	9.4	2,749,169,705	10.7		
Real Estate						
Short-term investment funds	0	—	2,543	—		
Real estate funds	2,383,493,263	8.2	2,183,113,382	8.5		
Total real estate	2,383,493,263	8.2	2,183,115,925	8.5		
Private Equity						
Private equity funds	286,928,118	1.0	116,403,554	0.5		
Total private equity	286,928,118	1.0	116,403,554	0.5		
TOTAL INVESTMENTS	\$ 28,921,028,586	100.0	\$ 25,830,231,450	100.0		

Largest Holdings (by Fair Value)

Fixed Income Securities - As of December 31, 2017		
Par Value	Description	Fair Value
\$ 250,920,000	US Treasury N/B: 1.50%, due 10/19	\$ 249,194,925
105,045,197	FNMA TBA 30 YR: 3.0%, due 2/48	104,907,736
95,390,000	US Treasury N/B: 1.125%, due 06/21	92,379,253
80,915,000	US Treasury N/B: 2.125%, due 09/24	79,897,241
76,861,101	GNMA II TBA 30 YR: 3.50%, due 01/48	79,455,163
76,447,549	US Treasury Inflation Index: 0.75%, due 02/42	77,191,588
37,988,769	Treasury Inflation Linked GILT: 1.250%; due 11/27	68,728,255
63,650,000	US Treasury N/B: 2.125%, due 11/24	62,814,594
63,695,000	US Treasury N/B: 2.25%; due 08/27	62,799,289
63,495,000	US Treasury N/B: 2.0%, due 6/24	62,279,666

Equities - As of December 31, 2017		
Shares/Units	Description	Fair Value
86,721,432.380	NTGI - QM Collective Daily Russell 3000 Index Fund - Non Lending	\$ 3,388,639,970
17,543,526.720	NTGI - QM Collective Daily All Country World Ex US IMI Index Fund - Non Lending	2,851,033,614
1,998,443.000	UBS U.S. Equity Minimum Volatility Index Collective Fund	403,691,281
19,983,178.340	SSGA Russell Fundamental US Index Fund	388,253,172
1,997,862.670	UBS World (Ex-U.S.) Equity Minimum Volatility Index Collective Fund	315,807,546
19,967,331.950	SSGA Russell Fundamental Global Ex-US Index Fund	289,446,444
2,704,546.420	Lazard Emerging Markets Equity	54,145,019
15,963.000	Samsung Electronics Co Ltd	37,993,297
489,800.000	Tencent Holdings Ltd.	25,438,297
660,445.000	Ishares MSCI India ETF	23,822,251

Note: Space and cost restrictions make it impractical to print a detailed listing of the investment portfolio in this report; however, a portfolio listing is available and will be mailed upon request.

	1 Year	3 Years	5 Years	10 Years
TMRS Total Fund Return	14.27%	7.19%	7.46%	6.71%
Total Fund Active Weighted Benchmark	13.31%	6.46%	6.93%	6.38%
TMRS Core Fixed Income Return	3.93%	2.56%	2.27%	3.91%
Fixed Income Benchmark	3.54%	2.24%	2.10%	3.75%
TMRS Non-Core Fixed Income Return (1)	8.06%	5.66%	—	—
Non-Core Fixed Income Benchmark (1)	9.53%	5.03%	—	—
TMRS Real Return (2)	8.32%	3.06%	1.87%	—
Barclay's World Government Inflation-Linked Bond Index (2)	8.51%	2.46%	1.28%	—
TMRS Domestic Equity Return	20.54%	10.84%	15.36%	8.94%
Russell 3000 Daily Index	21.13%	11.12%	15.58%	9.05%
TMRS International Equity Return	29.41%	9.08%	7.90%	2.12%
International Equity Active Weighted Daily Index	27.81%	8.38%	7.22%	1.68%
TMRS Absolute Return (3)	11.35%	5.84%	—	—
HFRI Fund of Funds Diversified Index (Month Lag) (3)	6.14%	2.20%	—	—
TMRS Real Estate Return (4)	11.93%	13.97%	14.75%	—
NCREIF-ODCE 1 Quarter Lag (4)	7.66%	10.83%	11.58%	—
TMRS Private Equity(5)	19.69%	—	—	—
Russell 3000 +3% (Quarter Lag) (5)	22.22%	—	—	—

(1) The inception date of this portfolio is 10/1/2014; therefore, five-year and ten-year returns are not provided. As of 12/31/2017, inception-to-date returns were 5.47% and 4.38% for TMRS' return and the benchmark, respectively.

(2) The inception date of this portfolio is 2/1/2011; therefore, ten-year returns are not provided. As of 12/31/2017, inception-to-date returns were 3.89% and 3.32% for TMRS' Real Return and the Barclays World Government Inflation-Linked Index, respectively. The policy benchmark for the Real Return asset class is the CPI + 4%; however, until further diversification within the asset class occurs, the portfolio benchmark for global inflation-linked bonds is used.

(3) The inception date of this portfolio is 8/1/2014; therefore, five-year and ten-year returns are not provided. As of 12/31/2017, inception-to-date returns were 5.37% and 2.39% for TMRS' return and the benchmark, respectively. Absolute return fund returns are one-month lagged.

(4) The inception date of this portfolio is 11/1/2011; therefore, ten-year returns are not provided. As of 12/31/2017, inception-to-date returns were 13.00% and 11.88% for TMRS' return and the benchmark, respectively. Privately held real estate fund returns are one-quarter lagged.

(5) The inception date of this portfolio is 12/1/2015; therefore, three-year, five-year, and ten-year returns are not provided. As of 12/31/2017, inception-to-date returns were 9.88% and 19.38% for TMRS' return and the benchmark, respectively. Private equity fund returns are one-quarter lagged.

Note: Rates of return presented are calculated using a time-weighted rate of return methodology based upon fair values, and are presented gross of investment management fees to the extent such information is available. Therefore, in some instances, a combination of gross and net returns are presented.

2017 Investment Results

Continued

Barclays Capital U.S. Aggregate Bond Index – This index covers the U.S. investment-grade fixed rate bond market, including government and corporate securities, agency mortgage pass-through securities, and asset-backed securities. To be included in the index, these securities must meet certain criteria. Major sectors are subdivided into more specific indices that are calculated and reported on a regular basis.

Barclays Capital U.S. Long Government/Credit Index – This index measures the investment return of all medium and larger public issues of U.S. Treasury, agency, investment-grade corporate, and investment-grade international dollar-denominated bonds with maturities longer than 10 years.

Barclay's World Government Inflation-Linked Bond Index – This index includes only government issuers of inflation-linked bonds in the following major markets: Australia, Canada, France, Germany, Italy, Japan, Sweden, U.K., and the U.S.

CPI – The Consumer Price Index (CPI) is a measure that examines the weighted average of prices of a basket of consumer goods and services, such as transportation, food, and medical care. The CPI is calculated by taking price changes for each item in the predetermined basket of goods and averaging them; the goods are weighted according to their importance. Changes in CPI are used to assess price changes associated with the cost of living.

Fixed Income Benchmark – The Fixed Income Benchmark is weighted by the average balance of fixed income funds and is comprised of 100% Barclays Capital U.S. Aggregate Bond Index beginning July 1, 2009, and 100% Barclays Capital Long Government/Credit Index prior to July 1, 2009.

HFRI Fund of Funds Diversified Index – The HFRI Monthly Indices (“HFRI”) are a series of benchmarks designed to reflect hedge fund industry performance by constructing equally weighted composites of constituent funds, as reported by the hedge fund managers listed within the HFR Database. The Diversified Fund of Funds Composite Index is composed of Fund of Funds which exhibit one or more of the following characteristics: invests in a variety of strategies among multiple managers; historical annual return and/or a standard deviation generally similar to the HFRI Fund of Fund Composite index; and demonstrates generally close performance and returns distribution correlation to the HFRI Fund of Fund Composite Index.

International Equity Active Weighted Index – The International Equity Active Weighted Index is weighted by the average balance of international funds applied to each corresponding benchmark (MSCI EAFE and MSCI All Country World – ex U.S. Investable Market Index) return.

MSCI EAFE Index – This is a free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the U.S. and Canada.

MSCI All Country World – ex U.S. Investable Market Index – This is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets, excluding the U.S.

NCREIF-ODCE – The National Council of Real Estate Fiduciaries - Open End Diversified Core Equity (NCREIF-ODCE) is a capitalization-weighted index of investment returns reporting on both a historical and current basis the results of 28 open-end commingled funds pursuing a core investment strategy, some of which have performance histories dating back to the 1970s.

Non-Core Fixed Income Benchmark – This index is comprised of 50% Barclays Corporate High Yield Index, 25% JPM GBI-EM Global Diversified Index, and 25% JPM CEMBI Broad Diversified Index.

Russell 3000 Index – This index measures the performance of 3,000 publicly held U.S. companies based on total market capitalization, which represents approximately 98% of the investable U.S. market.

Total Fund Active Weighted Benchmark – The Total Fund Active Weighted Benchmark is weighted by the average balance of all funds and is comprised of asset class composite benchmarks associated with each fund.

Presented below is the 5-Year Risk-Adjusted Return of the TMRS Total Return in comparison to that of the Total Fund Active Weighted Benchmark. The Sharpe Ratio is used, which measures excess return per unit of total risk. It is calculated by taking the excess return over the risk-free rate, divided by the standard deviation of the excess return; the higher the value, the better the historical risk-adjusted performance.

As of December 31, 2017	TMRS	Total Fund Active Weighted Benchmark
5-Year Risk-Adjusted Return	1.46	1.35

Schedule of Investment Expenses

For the Year ended December 31, 2017	
Internal operating expenses	
Staff salaries	\$ 2,539,698
Payroll taxes	152,255
Retirement contributions	421,136
Insurance	240,029
Electronic investment services	1,213,136
Travel	138,424
Dues, subscriptions, and training	52,284
Other administrative expenses	7,572
Total	4,764,534
Investment management and other external expenses	
Investment management	78,496,349
Custodial services	1,160,797
Consulting	1,738,664
Legal	541,752
Total	81,937,562
Total investment expenses	\$ 86,702,096

Investment Management Fees For the Year Ended December 31, 2017				
Asset Class	Management Fees	Incentive Fees	Total Fees	Fair Value at Dec. 31, 2017
Cash Equivalents	\$ —	\$ —	\$ —	\$ 23,541,358
Core Fixed Income	4,524,132	—	4,524,132	4,936,041,217
Non-Core Fixed Income	18,136,643	14,499,722	32,636,365	4,631,812,769
Real Return	14,170,585	2,667,515	16,838,100	2,923,896,635
U.S. Equities	10,739,650	—	10,739,650	5,933,075,388
International Equities	10,527,516	—	10,527,516	5,074,206,528
Real Estate	25,005,727	17,632,495	42,638,222	2,383,493,263
Absolute Return	32,623,794	49,309,504	81,933,298	2,728,033,310
Private Equity	9,346,493	4,939,271	14,285,764	286,928,118
Totals	\$ 125,074,540	\$ 89,048,507	\$ 214,123,047	\$ 28,921,028,586

Note: Fees for private investments are not generally reflected in the System's financial statements, but are instead netted from the assets' fair values.

