

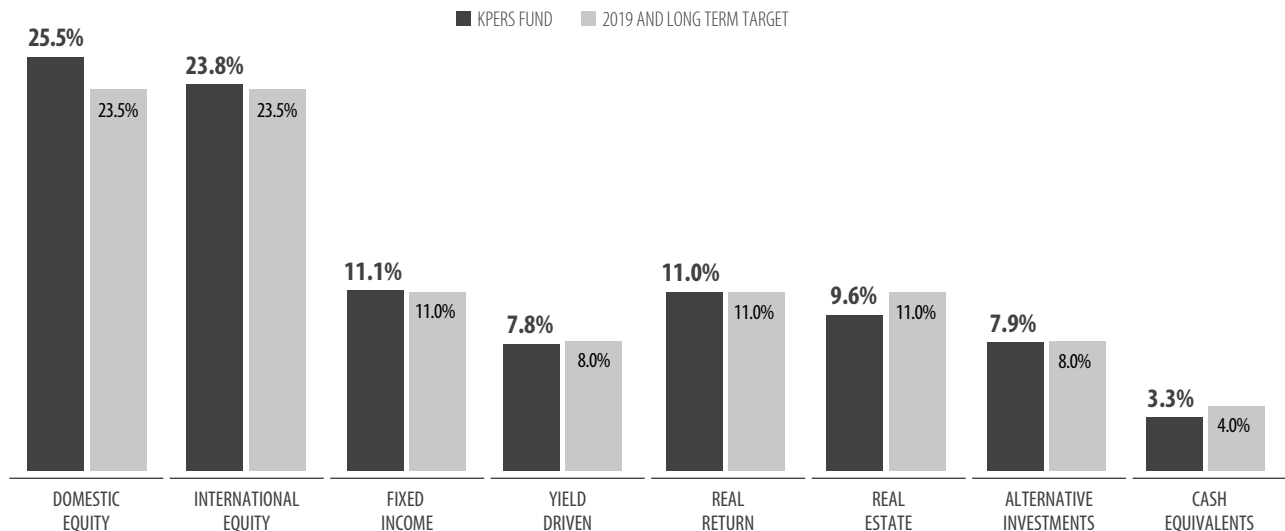
INVESTMENT SECTION



CHIEF INVESTMENT OFFICER'S REVIEW

The Kansas Public Employees Retirement System investment portfolio represents all contributions to the plan, from both members and their employers, as well as net earnings on these assets. Total assets at the end of Fiscal Year 2019 were \$20.2 billion. The System's investment portfolio is managed for the long term, in order to generate adequate returns to pay the

benefits promised to members. In order to achieve that goal, the assets receive the benefit of a broadly diversified investment portfolio which includes domestic and non-U.S. stocks, bonds, real estate, timber, infrastructure, alternative investments, and cash equivalents.



BASIS OF PRESENTATION

The investment performance data is calculated by the Retirement System's custodial bank and prepared by the Retirement System's Investment Division staff. In Fiscal Year 2019, the System's custodial bank was State Street Bank and Trust. Performance calculations were prepared using time-weighted rates of return, gross of fees, unless otherwise indicated.

ASSET ALLOCATION

Portfolio investments are diversified among eight different asset classes for asset allocation and investment performance purposes, including: domestic equity, international (non-U.S.) equity, fixed income, "yield driven" assets, "real return" assets, real estate, alternative investments and cash equivalents. (NOTE: For financial reporting purposes, as reported in the Financial Section and the Investment Summary in the Investment Section, investments are categorized by the underlying security.)

The Board of Trustees, working with the System's general investment consultant, Meketa Investment Group (MIG) and investment staff, last completed an asset/liability study in January 2016. The Board reviewed several investment policy options during the asset/liability study, all of which contained an emphasis on improving funding progress over time. At the conclusion of the asset/liability study, the Board readopted the System's existing

long-term asset allocation targets. The risk philosophy implied by the asset allocation policy targets places significant emphasis on managing and improving the funded status of the Retirement System over time. Subsequent to the completion of the asset/liability study, the Board has increased the cash equivalents target to 4 percent and reduced the fixed income target to 11 percent. This adjustment was necessitated by reductions in State of Kansas employer contributions to the Retirement System for Fiscal Years 2016 through 2019. The Retirement System's Board of Trustees began another asset/liability study in early 2019, and expects to complete the study and adopt a target asset mix in early 2020.

The allocation to equity investments (primarily publicly-traded stocks) continues to comprise the largest portion of the Retirement System's investment portfolio. This allocation reflects the System's long-term investment orientation and the expectation that equities will provide attractive real returns over time. Equity investments allow the investment portfolio to participate in the investment returns produced by companies seeking to grow and profit from their business activities. Equity investments are made globally, sourcing investment return from both domestic and foreign companies, and diversifying the accompanying investment risk across a broad spectrum of economies, currencies, economic sectors, and industries. Fixed income investments

are also an important component of the System's asset mix. Due to its relatively low correlation with equities, the fixed income portfolio serves to diversify the risk of equity investing, and also provides a source of current income.

The yield driven asset class is designed to house those assets which derive a significant part of their expected return from income and have moderate exposure to growth risk, but also provide a degree of diversification. The yield driven asset class consists of the System's strategic fixed income portfolios, a portion which is invested in bank loan securities, and investments in domestic Real Estate Investment Trusts (REITs) and Master Limited Partnerships (MLPs).

The majority of the real return asset category is made up of Treasury Inflation Protected Securities (TIPS) and global inflation linked bonds (GILBs). These two portfolios are both managed passively. The real return asset class also houses the System's investments in infrastructure and timber assets.

Real estate investments generate returns in a different manner than equities or fixed income investments, since real estate follows a different (and typically longer) market cycle. Because it moves in a different market cycle than publicly-traded stocks and bonds, real estate provides diversification advantages to the investment portfolio, as well as some inflation protection. The System's real estate portfolio is heavily weighted to "core" real estate, which means that it also produces an attractive current income.

The System's alternative investments consist primarily of investments in private partnerships that make venture capital investments, pursue leveraged buyout strategies or own private debt. These investments represent the higher end of the investment risk/return spectrum. Private equity managers seek higher growth opportunities in pursuit of higher returns, with commensurate investment risk.

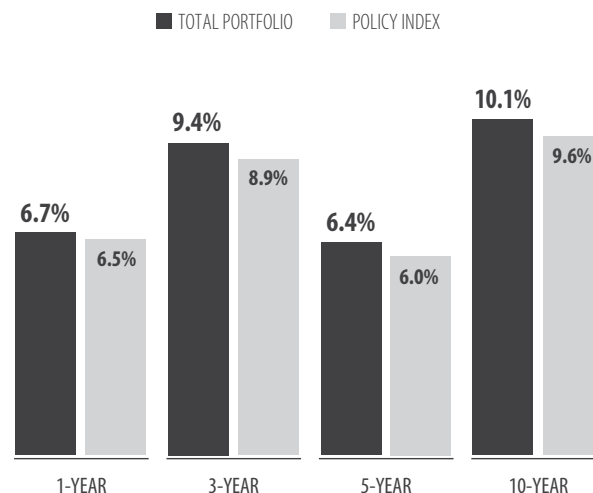
The System also holds cash equivalents investments, primarily to facilitate investment transactions and the cash flows needed to pay benefits. The cash equivalents portfolio is bifurcated, with a portion of the portfolio invested in a slightly longer duration strategy with daily liquidity, while the majority of the portfolio is invested as a STIF (Short-term Investment Fund).

INVESTMENT POLICY

The Board of Trustees has adopted a Statement of Investment Policy, Objectives and Guidelines (the Statement), which serves as a guide to implement the System's broad investment objectives. The Statement complements state statutes and documents the principles and standards that guide the management of the System's assets. It is binding upon all persons with authority over the assets, including investment managers, custodians, consultants, staff and the members of the Board of Trustees. The

Statement is the product of the Board's careful and prudent study, and is reviewed annually and updated as needed. It sets forth the investment policies, objectives and guidelines which the Board of Trustees judges to be appropriate and prudent, in consideration of the needs of the System, and to comply with K.S.A. 74-4901 et seq., to direct the System's assets. Although the System is not subject to the provisions of the Employee Retirement Income Security Act of 1974, as amended (ERISA), the Board intends to abide by the provisions of ERISA to the greatest extent practicable. As such, this Statement is written to be consistent with ERISA. Among other things, the Statement establishes the criteria against which the System's investment managers are to be measured. In addition, it serves as a review document to guide ongoing oversight of the investment of the Fund as a yardstick of compliance with K.S.A 74-4901 et seq.

TIME WEIGHTED TOTAL RETURN *Total Portfolio*

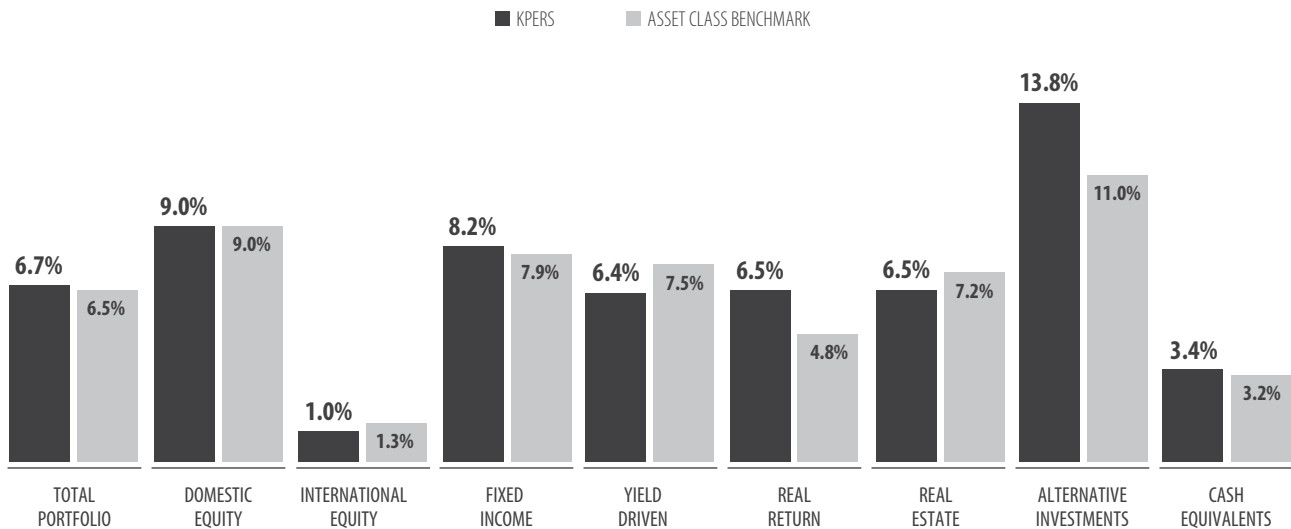


FISCAL YEAR 2019 INVESTMENT PERFORMANCE

The Retirement System's total investment portfolio experienced a 6.7 percent total return for the one year ending June 30, 2019. The 6.7 percent return outperformed the KPERS Policy Index by 0.2 percent for the fiscal year. For the three years ending June 30, 2019, the System's total investment portfolio has produced an average annualized return of 9.4 percent, which outperformed the Policy Index by 0.5 percent. The System's investment portfolio generated a more moderate 6.4 percent total return during the five years ending June 30, 2019, exceeding the Policy Index benchmark by 0.4 percent. For the ten-year time period, total return has been a more robust 10.1 percent, and has exceeded the Policy Index by 0.5 percent. As of June 30, 2019, the System's total return on total assets ranked above the median of the Wilshire TUCS universe for all pension plans for all time periods of one year and longer. The System's total return ranking was in the top quartile for the seven and ten year trailing time periods.

TIME WEIGHTED TOTAL RETURN BY ASSET CLASS

Fiscal Year 2019



For the 25-year period ending June 30, 2019, the System's assets have produced an average annualized total return of 8.4 percent, exceeding the historical 8 percent actuarial return assumption. (The System's Board of Trustees took action to reduce the actuarially assumed rate of return from 8 percent to 7.75 percent in November 2016).

FINANCIAL MARKET AND PERFORMANCE OVERVIEW

The Retirement System's investment portfolio experienced several different market environments during Fiscal Year 2019. The first and last quarters of the fiscal year produced positive total returns of 2.6 percent and 3.3 percent, respectively, for the System's entire investment portfolio. However, the second and third quarters of the fiscal year were more volatile, with a negative 6.6 percent total return in the second quarter, followed by a 7.9 percent total return in the third quarter, as global risk assets first sold off dramatically on fears of a global economic slowdown, then rebounded strongly. For the full Fiscal Year 2019, the System's investment portfolio produced a 6.7 percent total return, outperforming the Policy Index return of 6.5 percent, but underperforming the actuarial return assumption of 7.75 percent. The private equity asset class provided the best return in Fiscal Year 2019, with a 13.8 percent result, followed by the domestic equity asset class, with a 9.0 percent total return. The 1.0 percent total return from international equities was disappointing, due to both weakness in non-U.S. stocks, and a strong U.S. dollar. The System's core fixed income portfolio benefited from a decline in interest rates and the Federal Reserve's shift to a more dovish stance on monetary policy, and produced an 8.2 percent total return for the fiscal year. Returns from the real estate, real return, and yield driven asset classes were more moderate and comparable (6.5 percent, 6.5 percent, and 6.4 percent, respectively).

Trade tensions between the U.S. and China dominated geopolitical risks throughout Fiscal Year 2019. Slowing rates of global economic growth were also a consistent concern for investors during the fiscal year. The fiscal year began with the Federal Reserve in tightening mode on monetary policy. However, after the second quarter's "growth scare," the Federal Reserve pivoted to a more dovish tone in its guidance, and moved toward lowering the Fed Funds rate in late August. Other global central banks also became more accommodative in the latter half of the fiscal year. The U.S. Treasury yield curve moved to an inverted position, and was widely cited as an indicator of an impending recession in the U.S. economy. Other investor concerns included high U.S. equity valuation levels, the sustainability of corporate earnings growth, the partial shutdown of the U.S. government in the fall of 2018, Brexit, and slowing economic growth in China, Europe and Japan. However, the Retirement System is an institutional investor with an extremely long-term time horizon and a widely-diversified investment portfolio. Long-term results continue to be positive, with an 8.4 percent average annualized total return for the trailing 25-year time period, outperforming the Policy Index return of 7.8 percent for the same time period, and exceeding the current actuarial return assumption of 7.75 percent, as well as the historical 8 percent assumption (1986-2016).

INVESTMENT STAFF

The System employs a staff of nine investment professionals to provide oversight and management of the assets and external investment managers. Under the oversight of the Chief Investment Officer (CIO), responsibility for the portfolio is assigned to the respective investment teams. The Deputy CIO for Public Markets has oversight responsibility for the publicly-traded asset classes,

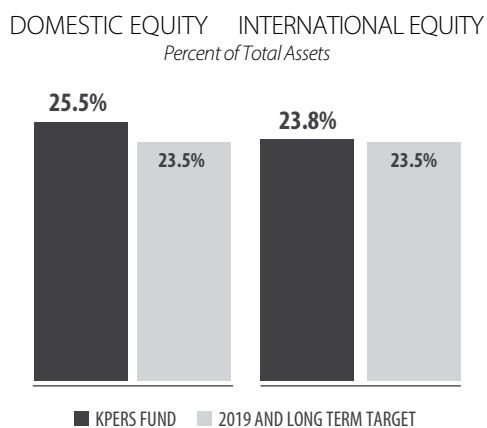
and oversees the System’s active international equity investment portfolios. The Investment Officer for Public Markets oversees the yield driven investment portfolios, and the passive domestic and international equity portfolios. The Assistant Investment Officer has oversight responsibility for the core fixed income, the TIPS/ GILB portfolios in the real return asset class, and the cash equivalents portfolios. The Deputy CIO for Private Markets manages the System’s real estate and private equity investments, as well as the allocations to infrastructure and timber. The Chief Investment Officer and the four Investment Officers are supported by a team of four Investment Analysts who provide research support and assistance in managing the portfolios. Investment staff are focused on bringing a consistent, disciplined management process to all aspects of oversight of investment managers, compliance monitoring and risk management.

PUBLIC EQUITY INVESTMENTS

Public equity investments represent the largest strategy allocation within the System’s portfolio. As of June 30, 2019, the market value of the System’s global equity portfolio was \$10.0 billion. The strategy is executed through external managers investing domestically and internationally. Active strategies are utilized for approximately 38.6 percent of the public equity portfolio, focusing entirely on international equities. The balance of the global equity portfolio is passively managed to replicate the return of broad market indices.

PORTFOLIO STRUCTURE

The following graphs describe the current and target allocations at June 30, 2019:



DOMESTIC EQUITY

Domestic equities represent 51.7 percent of the total public equity portfolio and 25.5 percent of total assets. Domestic equity investments are benchmarked against the Russell 3000 index. It is the System’s view that consistent outperformance

over time through active management is extremely difficult when investing in U.S. equities. Therefore, 100 percent of the domestic equity portfolio is passively managed in an index strategy. This passive exposure is designed to replicate the return on the Russell 3000 index and is implemented through two investment managers.

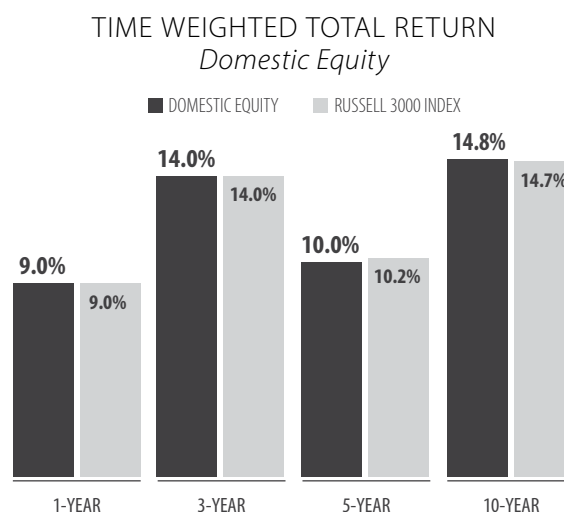
INTERNATIONAL EQUITY

International equities represent 48.3 percent of the total public equity portfolio and 23.8 percent of total assets. International equity investments are benchmarked against the MSCI All Country World – Ex U.S. Net Index. Equity investments in companies domiciled outside of the United States offer the potential to add value through prudent active management. Therefore, 80 percent of this portfolio is actively managed. The System has retained five active managers to invest across the non-U.S. developed markets and emerging markets. The balance of the international equity portfolio is invested to replicate the return on the MSCI All Country World – Ex U.S. Net Index.

PERFORMANCE

The System’s domestic equity portfolio return was in line with the portfolio’s benchmark during Fiscal Year 2019. The domestic equity portfolio produced a 9.0 percent total return during the fiscal year. Over longer time periods, the return on the domestic equity portfolio was also in line with its benchmark, as expected, given its purely passive approach.

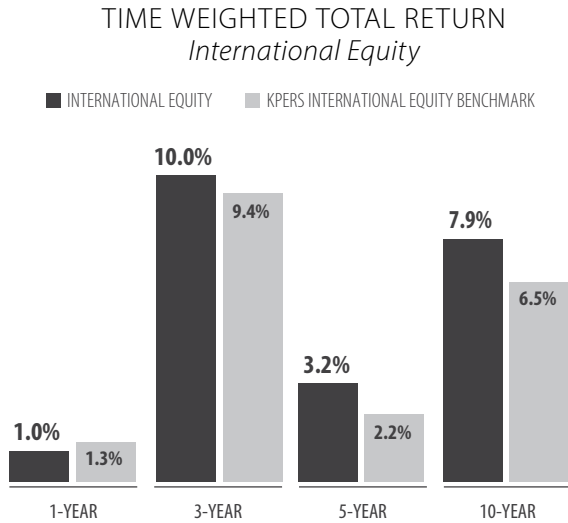
The following chart reports the domestic equity portfolio performance:



During Fiscal Year 2019 the international equity portfolio return was positive, though below the benchmark return. The international equity portfolio produced a total return of 1.0 percent for the fiscal year, relative to the 1.3 percent return for

the benchmark. Over longer time periods, the international equity portfolio has produced strong relative returns, as active management has added value relative to the benchmark.

The following chart reports the international equity portfolio performance:

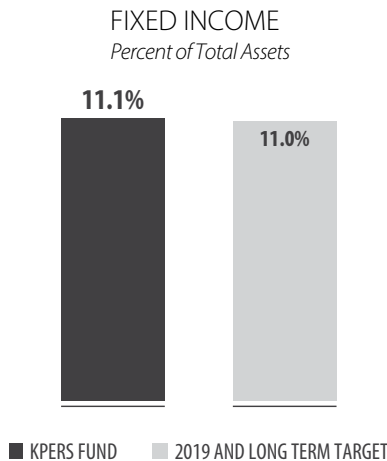


FIXED INCOME INVESTMENTS

As of June 30, 2019, the Retirement System’s fixed income portfolio had a market value of \$2.2 billion, representing 11.1 percent of the total assets of the System. The portfolio is structured with external managers investing through an active core fixed income U.S. mandate. The strategy is managed by two investment managers.

PORTFOLIO STRUCTURE

The following graph describes the current and target allocations at June 30, 2019:



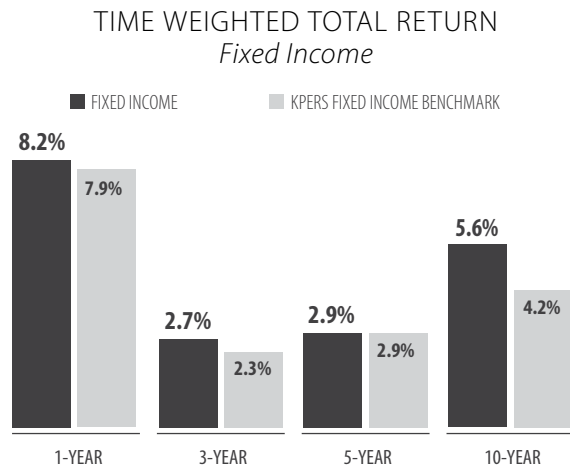
CORE U.S. FIXED INCOME

The fixed income portfolio is invested in core U.S. strategies through two active investment managers. The portfolio’s objective is to provide diversification to other assets in the System’s portfolio and to preserve capital while providing current income. The core fixed income U.S. strategies are primarily invested in traditional investment grade securities. The fixed income portfolio utilizes the Barclays Capital U.S. Aggregate Index as the benchmark.

PERFORMANCE

The core U.S. fixed income portfolio produced a total return of 8.2 percent during Fiscal Year 2019, outperforming the benchmark return of 7.9 percent. Both investment managers contributed positively to outperformance during the period. Over longer time periods the portfolio has provided positive absolute returns which have either met or exceeded the benchmark return.

The following chart reports the fixed income portfolio performance:

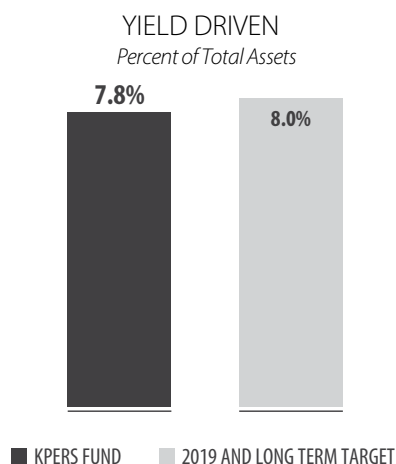


YIELD DRIVEN INVESTMENTS

Yield driven investments represent one of the newer strategy allocations within the System’s investment portfolio. As of June 30, 2019, the System’s yield driven portfolio had a market value of \$1.6 billion representing 7.8 percent of total assets. The strategy is actively managed by two strategic fixed income managers, one bank loan manager, two REIT managers and one MLP manager. The yield driven asset class is designed to produce current income and an element of diversification away from equity risk, while also maintaining some degree of correlation with equities.

PORTFOLIO STRUCTURE

The following graph describes the current and target allocations at June 30, 2019:



STRATEGIC FIXED INCOME

The strategic fixed income strategy represents approximately 49.8 percent of the total yield driven portfolio and 3.9 percent of total assets. The strategy is currently measured against the Barclays U.S. High Yield 2% Issuer Cap Index. The strategic fixed income portfolio maintains a minimum investment of 70 percent in high yield corporate debt securities. The System’s two strategic fixed income managers produced positive returns for Fiscal Year 2019.

REAL ESTATE INVESTMENT TRUSTS (REITS)

REITs represent 21.2 percent of the yield driven asset class and 1.6 percent of the System’s total assets. This strategy is benchmarked against the MSCI U.S. REIT Index. The publicly-traded real estate securities portfolio is implemented by managers which actively invest in domestic REITs, real estate operating companies (REOCs) and related investment vehicles. The domestic REIT strategy is actively managed by two investment managers. REIT fundamentals continued to improve, producing positive total returns for Fiscal Year 2019, and the manager performance met or exceeded the benchmark.

MASTER LIMITED PARTNERSHIPS (MLPS)

MLPs represent 18.4 percent of the yield driven asset class and 1.4 percent of the System’s total assets. The strategy is benchmarked against the Alerian MLP Index. The MLP sector offers attractive current yields and long-term growth prospects. The MLP portfolio is comprised of diversified energy sectors including companies focused on “midstream,” gathering and processing, infrastructure, and natural gas pipelines and storage. The System currently has one active MLP investment manager. The MLP portfolio produced a negative return for Fiscal Year 2019, underperforming its benchmark. MLP investments were

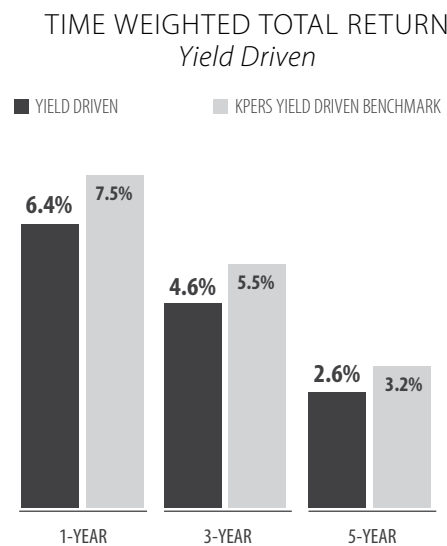
adversely affected by rising interest rates, slowing global growth and geopolitics during the fiscal year.

BANK LOANS

The bank loan allocation represents 10.5 percent of the yield driven asset class and 0.8 percent of the System’s total assets. The strategy is managed by one manager and is measured against the Credit Suisse Leveraged Loan Index. The strategy is intended to generate current yield through credit exposure to senior-secured, U.S. dollar denominated bank loans. The bank loan strategy is an effective hedge against rising interest rates. The bank loan portfolio produced a positive total return, while underperforming its benchmark, during Fiscal Year 2019.

PERFORMANCE

The yield driven portfolio produced a total return of 6.4 percent in Fiscal Year 2019, underperforming the asset class benchmark return of 7.5 percent, due primarily to underperformance in the MLP and bank loans portfolios. The yield driven portfolio has delivered positive returns over longer time periods, although it has underperformed the asset class benchmark.

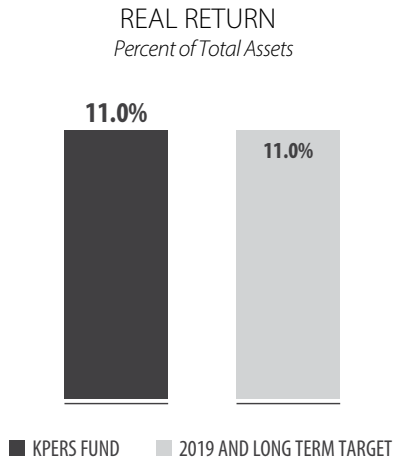


REAL RETURN INVESTMENTS

The real return portfolio is designed to provide the System with a hedge against future inflationary episodes. This strategy utilizes both public and private market investments. Public market exposure is global and achieved primarily through inflation linked fixed income securities issued by governments and their agencies in the U.S. as well as in developed countries around the world. Exposure in the private markets is currently achieved through investments in timber and infrastructure. The real return portfolio represents 11.0 percent of the System’s total assets, and had a market value of \$2.2 billion as of June 30, 2019.

PORTFOLIO STRUCTURE

The following graph describes the current and target allocations at June 30, 2019:



U.S. TREASURY INFLATION LINKED BONDS (TIPS)

The TIPS portfolio represents 41.1 percent of the real return portfolio and is benchmarked against the Barclays U.S. TIPS Index. This passively managed exposure is designed to replicate the return on domestic inflation linked bonds. It is the System's view that the minimal excess return available through active management of TIPS is not sufficient to compensate for the incremental costs of active management fees. The TIPS portfolio performed in line with its benchmark during Fiscal Year 2019, as expected.

GLOBAL INFLATION LINKED BONDS (GILBS)

The GILB portfolio represents 38.3 percent of the real return portfolio and is benchmarked against the Barclays World ILB Index (USD Hedged). The GILB portfolio provides global diversification by broadening the opportunity set to capture unexpected inflation within investment grade sovereign bonds. This portfolio was transitioned from active management to passive management during Fiscal Year 2019. Since the transition, performance of the GILB portfolio has been in line with the benchmark, as expected.

TIMBER

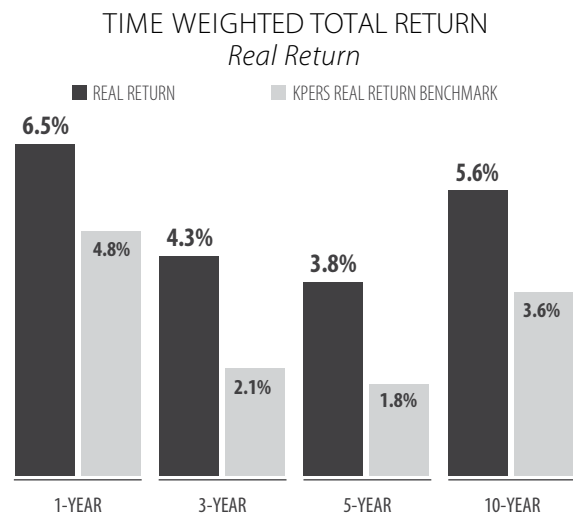
Timber investments are a component of the System's real return asset allocation due to their historically high correlation to inflation. The System is diversified within timber markets located in Idaho and throughout eight states in the southern U.S. Over time, timber investments are expected to provide the System with current cash yields and modest capital appreciation. For Fiscal Year 2019, the System's timber investments produced a 4.8 percent total return, underperforming the strategy benchmark and meeting the real return asset class benchmark.

INFRASTRUCTURE

The System's infrastructure portfolio is well diversified, with investments in Australia, the United Kingdom and throughout North and South America. It is invested across multiple sectors, including renewable power, toll roads, electric utilities, seaports and energy. The System's three infrastructure managers have been successful in operating their infrastructure investments. The infrastructure portfolio produced a total return of 11.4 percent for the fiscal year, outperforming the strategy benchmark by 3.6 percent.

PERFORMANCE

The System's real return portfolio outperformed its benchmark in Fiscal Year 2019, producing a 6.5 percent total return against a benchmark return of 4.8 percent. Infrastructure was the strongest performing investment strategy in the asset class. The real return portfolio has also outperformed its benchmark over the three-, five- and ten- year time periods ending June 30, 2019.



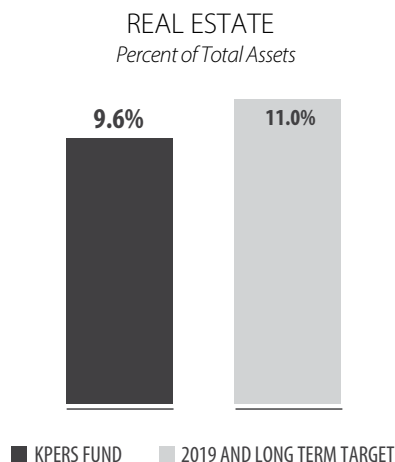
REAL ESTATE INVESTMENTS

As of June 30, 2019, the real estate portfolio had a market value of \$1.9 billion, representing 9.6 percent of the total fund. The real estate portfolio is primarily designed to provide diversification to the broader portfolio, while also providing a meaningful current income. Capital appreciation is a tertiary objective of current real estate investment activities.

PORTFOLIO STRUCTURE

The System's real estate portfolio is classified into two categories: "core" and "noncore." The "core" portion of the portfolio

is targeted at a 75 percent allocation, while the “noncore” segment is targeted at a 25 percent allocation.



CORE REAL ESTATE

The largest segment of the real estate portfolio is “core” real estate. This portion of the portfolio is expected to produce steady current income in the form of investment yield while also providing portfolio diversification, and serving as an inflation hedge. The Retirement System’s core portfolio primarily consists of partial and full commitments to seven commingled funds.

The System continued to invest in pooled real estate investment funds during Fiscal Year 2019. This strategy is expected to result in improved liquidity, enhanced portfolio diversification, lower management fees and a reduction in the single event risk associated with owning individual real estate assets.

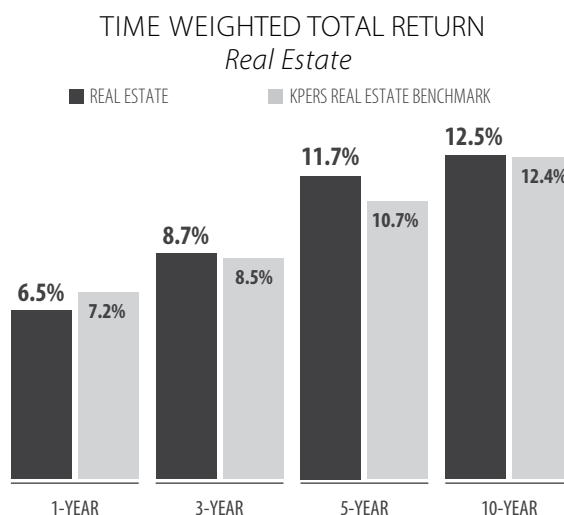
NON-CORE REAL ESTATE

The “non-core” segment consists of investments that generally involve some element of property lifecycle risk (such as positioning, leasing and development) while also utilizing greater leverage (debt) than core strategies. While providing elements of inflation protection and a diversification benefit to the broader portfolio, the System expects non-core real estate investments to produce meaningful capital appreciation and higher overall long-term returns than core investments. The non-core portfolio consists of investment funds employing a diversity of strategies and property types, both domestically and internationally.

REAL ESTATE PERFORMANCE

The System’s real estate portfolio underperformed its benchmark in Fiscal Year 2019. The core real estate portfolio produced a total return of 5.4 percent, underperforming the strategy benchmark by 1.0 percent, while the non-core real estate portfolio outperformed its benchmark by a 0.8 percent, with a total return of 10.2 percent. In total, the System’s real estate portfolio produced a total return of 6.5 percent, which underperformed the benchmark

return by 0.7 percent. Overall, most of the System’s real estate fund investments continued to benefit from the stable economic landscape, with the majority generating positive returns. Longer term results from the real estate asset class have been more robust, with an 11.7 percent total return for the trailing five years, outperforming the asset class benchmark by 1.0 percent.

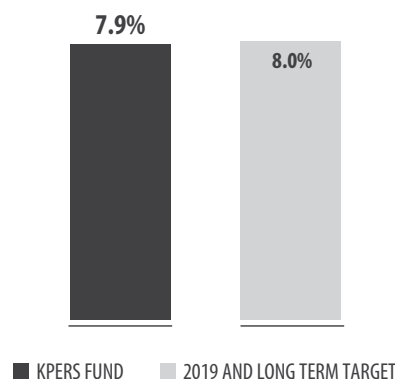


ALTERNATIVE INVESTMENTS

At June 30, 2019, the System’s alternative investment portfolio had a fair market value of \$1.6 billion, representing 7.9 percent of the total portfolio. Since the inception of the alternative investment program in 1997 through June 30, 2019, the System has committed \$4.1 billion to 119 funds with 60 general partners.

ALTERNATIVE INVESTMENTS

Percent of Total Assets



PORTFOLIO STRUCTURE

The alternative investment portfolio consists primarily of interests in private partnerships that provide equity and debt to companies. The portfolio contains two primary sub-portfolios based on investment period. Each portfolio has its own set of directives, guidelines, external fund managers and consultants who provide advice on investment strategy and investment selection during its investment period. The largest portfolio is the Private Equity Program (PEP), representing 99.5 percent of the market value of the asset class. The PEP portfolio actively seeks new commitments to private equity funds in three styles: buyout, venture capital/growth equity and special situations. Since the inception of PEP in 2007, the System has committed \$3.1 billion to 65 funds with 28 general partners.

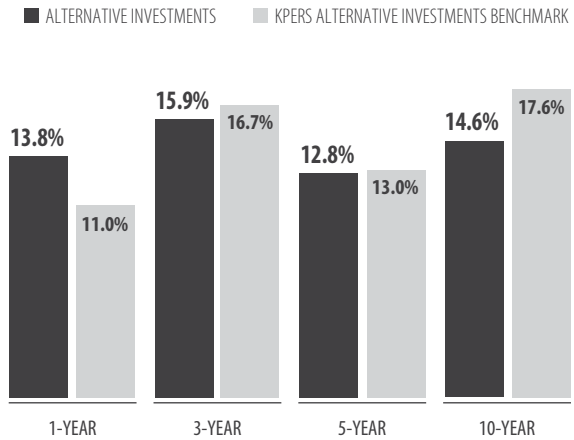
The second portfolio is the Alternative Investment Portfolio (AIP) which represents 0.6 percent of the market value of the asset class. From 1997 to 2001, AIP made commitments to 54 funds with 35 general partners across five styles: buyout, venture capital, mezzanine, distressed debt and natural resources. As this is a mature portfolio, the remaining funds in the AIP portfolio are currently pursuing exit strategies for their existing holdings.

ALTERNATIVE INVESTMENTS PERFORMANCE

The System's alternative investments portfolio outperformed its benchmark in Fiscal Year 2019, producing a 13.8 percent total return against a benchmark return of 11.0 percent.

Private equity investments typically span ten years or longer. Therefore, the longer-term returns from this asset class are more relevant in assessing its success in adding value to the overall portfolio. The System's current long-term performance objective for alternative investments is to exceed the return of the Russell 3000 plus 2 percent. As the chart below shows, the alternative investments portfolio is underperforming this objective over the ten-year time period, with a total return of 14.6 percent, due to exceptionally strong performance from the publicly-traded domestic equity benchmark in recent years.

TIME WEIGHTED TOTAL RETURN *Alternative Investments*



As required by K.S.A 74-4904, a schedule of alternative investments initiated on or after July 1, 1991, is listed on the following two pages.

ALTERNATIVE INVESTMENTS INITIATED ON OR AFTER JULY 1, 1991⁽¹⁾

As of June 30, 2019

Description	Cost	Market Value
Advanced Technology Ventures VI, L.P.	\$8,269,289	\$18,738
Apax Europe IX, L.P.	31,772,038	46,722,021
Apollo Investment Fund VII, L.P.	6,760,302	4,372,083
Apollo Investment Fund VIII, L.P.	42,827,215	51,821,059
Apollo Investment Fund IX, L.P.	4,252,087	5,082,979
Ares Corporate Opportunities Fund III, L.P.	7,024,686	13,214,424
Ares Corporate Opportunities Fund IV, L.P.	16,953,918	23,204,472
Ares Corporate Opportunities Fund V, L.P.	45,583,424	50,045,221
Ares Special Situations Fund IV, L.P.	47,686,469	42,322,647
Audax Mezzanine Fund III, L.P.	4,573,861	3,205,060
Beacon Group Energy Fund II, L.P.	1,841,499	468,139
Capital Resource Partners IV, L.P.	4,520,636	24,384
CCMP Capital Investors III, L.P.	41,589,818	52,540,126
Centerbridge Capital Partners II, L.P.	16,226,912	8,462,124
Centerbridge Capital Partners III, L.P.	13,099,246	18,378,203
Clayton Dublier & Rice VI, L.P.	2,998,282	9,999
Crestview Partners III, L.P.	27,335,487	39,011,923
Cypress Merchant Banking II, L.P.	6,889,672	10,465
El Dorado Ventures VI, L.P.	4,537,915	347,858
Encap Energy Capital VIII, L.P.	16,192,444	7,640,761
Encap Energy Capital IX, L.P.	32,001,118	25,495,130
Encap Energy Capital X, L.P.	36,591,052	43,250,441
First Reserve Fund XII, L.P.	17,878,556	4,882,598
FS Equity Partners VII, L.P.	41,013,585	52,360,157
FS Equity Partners VIII, L.P.	6,947,382	6,947,382
Green Equity Investors VII, L.P.	43,710,083	47,927,975
GSO Capital Solutions Fund, L.P.	6,354,528	1,634,918
GSO Capital Solutions Fund II, L.P.	14,657,996	10,330,135
GSO Capital Solutions Fund III, L.P.	9,800,978	10,204,641
Halpern Denny Fund III, L.P.	1	—
HD Access, Inc.	186,674	141,320
Hellman & Friedman VII, L.P.	4,143,769	19,450,371
Hellman & Friedman VIII, L.P.	37,716,784	46,656,416
JMI Equity Fund VII, L.P.	6,251,920	12,040,098
Montagu IV, L.P.	3,129,400	5,096,154
Montagu V, L.P.	35,180,676	47,903,031
New Enterprise Associates 13, L.P.	5,887,383	6,964,209
New Enterprise Associates 16, L.P.	25,875,000	28,753,024
New Mountain Partners V, L.P.	18,516,524	23,141,711
OCM Opportunities Fund VIIb, L.P.	—	558,935
OneLiberty Fund IV, L.P.	1,155,056	813,923
OneLiberty Ventures 2000, L.P.	12,493,019	3,158,897

ALTERNATIVE INVESTMENTS INITIATED ON OR AFTER JULY 1, 1991⁽¹⁾ (CONTINUED)

As of June 30, 2019

Description	Cost	Market Value
Pine Brook Capital Partners, L.P.	8,976,303	3,661,021
Pine Brook Capital Partners II, L.P.	43,257,562	58,185,357
Platinum Equity Capital Partners III, L.P.	15,017,597	16,590,615
Platinum Equity Capital Partners IV, L.P.	50,702,932	62,299,859
Quad-C Partners IX, L.P.	14,191,573	16,202,136
Snow Phipps II, L.P.	15,275,223	16,551,468
Snow Phipps III, L.P.	23,850,083	29,172,515
TA XII, L.P.	53,946,415	71,900,105
TowerBrook Investors III, L.P.	5,306,629	2,723,182
TowerBrook Investors IV, L.P.	17,850,297	28,460,531
TPG Growth II, L.P.	16,044,445	33,519,509
TPG Growth III, L.P.	32,185,497	38,112,971
TPG Growth IV, L.P.	18,983,141	19,921,421
TPG Partners VI, L.P.	9,277,976	6,177,601
TPG Partners VII, L.P.	53,231,523	72,412,331
VantagePoint Venture Partners III, L.P.	7,072,782	—
VantagePoint Venture Partners IV, L.P.	9,862,169	2,024,970
Vestar Capital Partners IV, L.P.	1,382,220	338,420
Vista Equity Partners Fund IV, L.P.	9,300,598	21,857,382
Vista Equity Partners Fund V, L.P.	56,859,777	86,425,042
Vista Equity Partners Fund VI, L.P.	70,217,684	87,710,384
Vista Equity Partners Fund VII L.P.	9,808,867	10,169,088
Warburg Pincus Equity Partners, L.P.	—	77,306
Warburg Pincus Global Growth, L.P.	418,706	658,744
Warburg Pincus Private Equity X, L.P.	8,894,710	18,989,814
Warburg Pincus Private Equity XI, L.P.	23,378,470	44,603,759
Warburg Pincus Private Equity XII, L.P.	44,367,908	56,516,462
Wellspring Capital Partners V, L.P.	7,834,250	11,105,645
Wellspring Capital Partners VI, L.P.	20,837,066	19,563,463
Windjammer Mezzanine & Equity Fund II, L.P.	—	23,218
	<u>\$1,358,759,087</u>	<u>\$ 1,600,568,471</u>

(1) Investment values quoted without spin-offs or distributions.

LIST OF LARGEST HOLDINGS⁽¹⁾

As of June 30, 2019

EQUITIES			FIXED INCOME			
Shares	Security	Fair Value (\$)	Par Value	Security	Description	Fair Value (\$)
1,317,709	Microsoft Corp	\$176,520,298	89,015,000	US Treasury N/B	2.25% 30 Apr 2021	\$89,762,726
803,064	Apple Inc	158,942,427	68,145,000	US Treasury N/B	3% 15 Feb 2049	74,842,291
72,018	Amazon.Com Inc	136,375,445	57,445,000	US Treasury N/B	2.125% 15 May 2022	58,091,256
416,045	Facebook Inc Cl A	80,296,685	45,500,000	US Treasury N/B	2.25% 15 Apr 2022	46,141,550
340,238	Berkshire Hathaway Inc Cl B	72,528,534	45,715,000	US Treasury N/B	2.125% 31 May 2021	46,025,862
463,719	Johnson & Johnson	64,586,782	41,395,000	US Treasury N/B	1.75% 15 Nov 2020	41,333,735
565,004	JP Morgan Chase & Co	63,167,447	35,205,000	US Treasury N/B	2.375% 30 Apr 2026	36,354,795
5,619,228	AIA Group Ltd	60,597,755	35,000,000	US Treasury N/B	1.5% 15 Apr 2020	34,855,100
52,991	Alphabet Inc Cl C	57,278,502	34,503,083	Tsy Infl IX N/B	0.125% 15 Apr 2022	34,232,579
737,299	Exxon Mobil Corp	56,499,222	31,805,000	US Treasury N/B	2.375% 15 May 2029	32,867,287

(1) A complete listing of the System's holdings is available at the Retirement System office.

CHANGES IN FAIR VALUE OF INVESTMENTS⁽¹⁾

(In Thousands)

For the Fiscal Year Ended June 30, 2019

	June 30, 2018 Fair Value	Purchases and Other Increases	Sales and Other Decreases	June 30, 2019 Fair Value	Asset Mix Fair Value
Marketable Securities					
Domestic Equities	\$ 6,049,135	\$ 1,338,329	\$ (1,258,088)	\$ 6,129,376	30.26%
International Equities	4,306,647	2,458,192	(2,453,461)	4,311,378	21.28
Total Fixed	5,281,962	7,433,742	(7,246,922)	5,468,782	26.99
Temporary ⁽²⁾ Investments	<u>506,080</u>	<u>24,984,248</u>	<u>(25,138,580)</u>	<u>351,748</u>	<u>1.74</u>
Total Marketable Securities	<u>16,143,824</u>	<u>36,214,511</u>	<u>(36,097,051)</u>	<u>16,261,284</u>	<u>80.27</u>
Real Estate and Alternative Investments					
Real Estate	2,177,717	293,712	(74,962)	2,396,467	11.83
Alternatives	<u>1,290,641</u>	<u>383,397</u>	<u>(73,470)</u>	<u>1,600,568</u>	<u>7.90</u>
Total Real Estate and Alternative Investments	<u>3,468,358</u>	<u>677,109</u>	<u>(148,432)</u>	<u>3,997,035</u>	<u>19.73</u>
Total	<u>\$19,612,182</u>	<u>\$ 36,891,620</u>	<u>\$(36,245,483)</u>	<u>\$ 20,258,319</u>	<u>100.00%</u>

(1) Amounts include changes in unrealized appreciation and exclude interest and dividend accruals.

(2) Temporary Investments include currencies, short term pools and securities maturing within one year of purchase.

U.S. EQUITY COMMISSIONS

For the Fiscal Year Ending June 30, 2019

Broker Name	Comissions Paid	Shares	Comissions per Share	Percent of Total Comissions
Liquidnet Inc	\$54,122	2,555,448	0.02	13.4%
J.P. Morgan Securities LLC	33,191	1,513,705	0.02	8.2
Citigroup Global Markets Inc	31,475	1,047,640	0.03	7.8
Morgan Stanley Co Inc	23,264	817,760	0.03	5.8
BofA Securities Inc	20,841	3,100,403	0.01	5.2
Merrill Lynch Pierce Fenner & Smith Inc	20,349	811,080	0.03	5.1
Wells Fargo Securities LLC	19,905	649,206	0.03	4.9
Green Street Trading LLC	19,304	643,790	0.03	4.8
Barclays Capital	18,816	615,738	0.03	4.7
Raymond James & Associates	17,878	555,072	0.03	4.4
Jefferies & Company Inc	17,300	535,964	0.03	4.3
Stifel Nicolaus & Co Inc	11,582	446,184	0.03	2.9
Other	114,998	11,159,446	0.01	28.5
Total Broker Comissions	<u>\$ 403,025</u>	<u>24,451,436</u>		<u>100.0%</u>

