

Investment

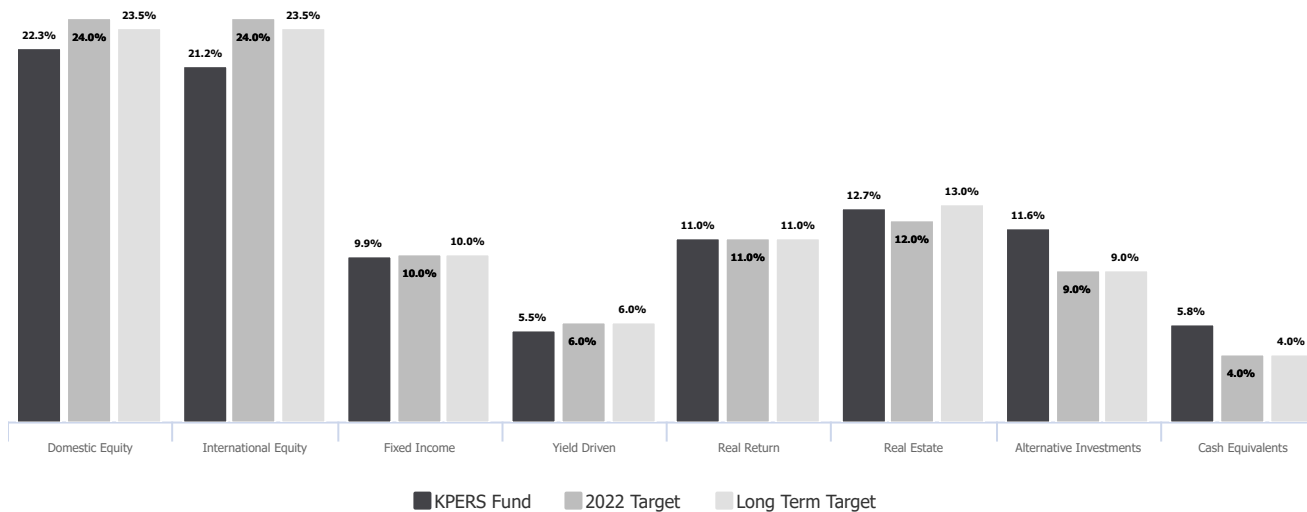
Section



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 2022 were \$24.3 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 2022, 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, completed an asset/liability study in January 2020. At the conclusion of the asset/liability study, the Board adopted a new set of 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. The long term target asset mix is 23.5 percent domestic equity, 23.5 percent international equity, 10 percent fixed income, 6 percent yield driven assets, 11 percent real return assets, 13 percent real estate, 9 percent alternatives (private equity), and 4 percent cash equivalents. A three year implementation plan to achieve the new long term target asset mix is in progress.

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.

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 and investments in domestic Real Estate Investment Trusts (REITs).

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, as well as some inflation protection, to the investment portfolio. 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, which consist primarily of investments in private partnerships that make venture capital investments, pursue leveraged buyout strategies or own private debt, represent the higher end of the investment risk/return spectrum. Private equity managers pursue higher growth opportunities in pursuit of higher returns, with commensurate investment risk.

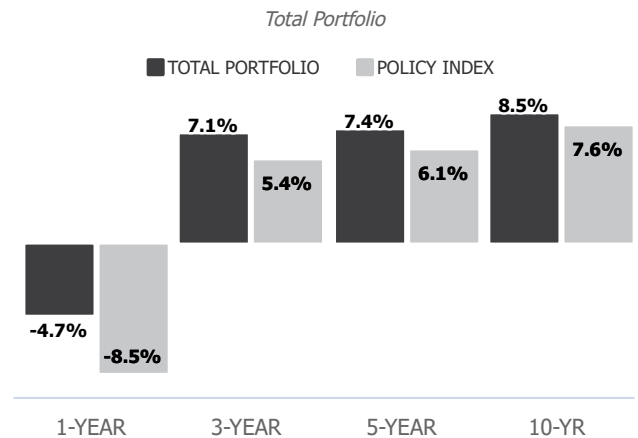
The System also holds cash equivalents investments, primarily to facilitate investment transactions and the cash flows needed to pay benefits. The cash equivalents portfolio is bifurcated, with a portion of the portfolio invested in a slightly longer duration strategy with daily liquidity, while the 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 the implementation of 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



FISCAL YEAR 2022 INVESTMENT PERFORMANCE

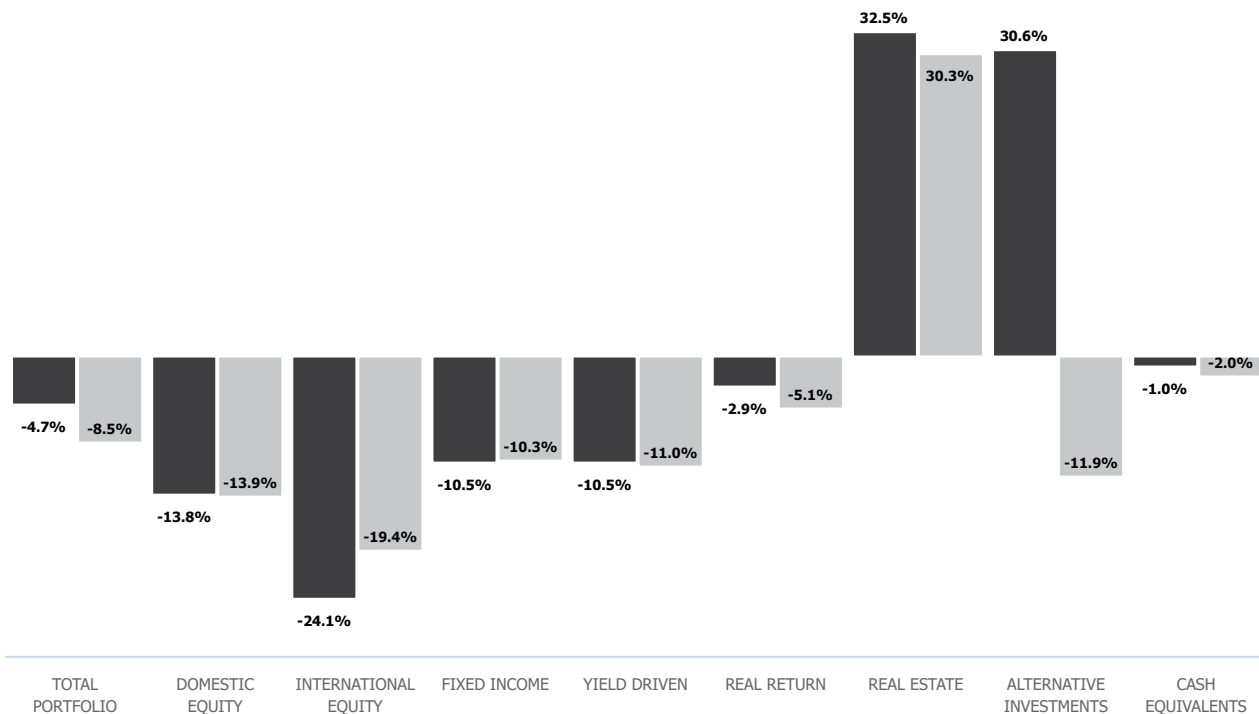
The Retirement System’s total investment portfolio experienced a negative 4.7 percent total return for the one year ending June 30, 2022. The negative 4.7 percent return outperformed the KPERS Policy Index by 3.8 percent for the fiscal year. For the three years ending June 30, 2022, the System’s total investment portfolio has produced an average annualized return of 7.1 percent, which outperformed the Policy Index by 1.7 percent. The System’s investment portfolio generated a 7.4 percent total return during the five years ending June 30, 2022, exceeding the Policy Index benchmark by 1.3 percent. For the ten-year period, total return has been 8.5 percent, and has exceeded the Policy Index by 0.9 percent, as of June 30, 2022.

For the 25-year period ending June 30, 2022, the System’s assets have produced an average annualized total return of 7.3 percent, exceeding the current 7.0 percent actuarial return assumption. The System’s Board of Trustees took action to reduce the actuarially assumed rate of return from 7.75 percent to 7.0 percent in May 2022.

TIME WEIGHTED TOTAL RETURN BY ASSET CLASS

Fiscal Year 2022

■ KPERS ■ INDEX



FINANCIAL MARKET AND PERFORMANCE OVERVIEW

Fiscal Year 2022 was a very difficult year for investors. Inflation concerns, fear of a global recession and ongoing geo-political tensions remained core concerns. Central banks moved aggressively against decades high inflation rates. In the U.S. the Federal Reserve increased its Fed Funds rate target by 25 basis points in March, 50 basis points in May and by an additional 75 basis points in June. Russia invaded Ukraine in February and the war has continued with little prospect for a near term resolution. In response to the global sanctions placed on the country, Russia curtailed the flow of natural gas into Europe, heightening the risk of recession. China maintained its zero COVID policy, affecting growth expectations and global supply chains. These events resulted in negative returns across the System's public market assets for the fiscal year.

Public domestic equities and U.S. REITS declined over Fiscal Year 2022 with the Russell 3000 Index producing a negative 13.9 percent and the MSCI U.S. REITS Index producing a total return of negative 6.4 percent for investors. International equities also declined, as the MSCI ACWI ex U.S. index delivered a negative 19.4 percent return for the fiscal year.

Fixed income returns were negatively impacted by central bank rate increases and rising inflation expectations leading to rising

U.S. Treasury yields. The Bloomberg Aggregate Bond Index produced a total return of negative 10.3 percent for the fiscal year. High yield bonds also delivered negative returns with the Bloomberg U.S. Corporate High Yield Index producing a negative 12.8 percent total return for the fiscal year.

Real yields moved higher over the fiscal year, weighing heavily on inflation-linked bonds with the Bloomberg U.S. TIPS Index posting a negative 5.1 percent total return for the fiscal year. Globally, inflation-linked bonds underperformed U.S. TIPS on a USD hedged basis, with the Bloomberg World Government Inflation-Linked Bond (Hedged) Index returning negative 7.7 percent for the fiscal year.

Lagged valuations benefitted the returns from private equity and private real assets during Fiscal Year 2022. Private real estate returns, as measured by the NCREIF ODCE Index, was 29.5 percent for the fiscal year. The System's private equity portfolio posted a 30.6 percent return for Fiscal Year 2022. Private market asset returns benefited from lagged quarterly valuations. This benefit is expected to wane as current market conditions are incorporated into future valuation.

INVESTMENT STAFF

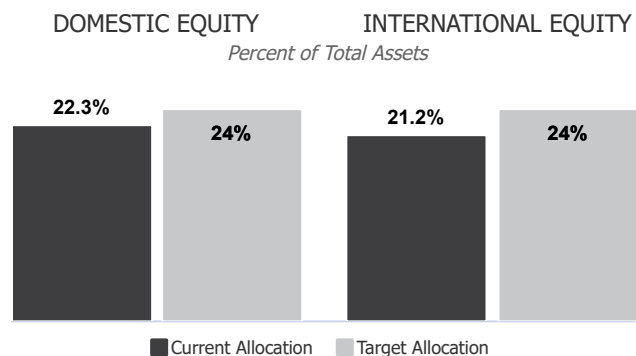
The System employs a staff of eleven investment professionals to provide oversight and management of the assets and external investment managers. Under the oversight of the Chief Investment Officer (CIO), responsibility for the portfolio is assigned to the respective investment teams. The Deputy CIO for Public Markets has oversight responsibility for the publicly-traded asset classes, and oversees the System’s active international equity investment portfolios and the currency overlay strategies. The Investment Officer for Public Markets oversees the core fixed income portfolios and the yield driven investment portfolios. The Assistant Investment Officer for Public Markets has oversight responsibility for the passive domestic equity and international equity portfolios, the passive TIPS/GILB portfolios in the real return asset class, and the cash equivalents portfolios. The Deputy CIO for Private Markets and two Assistant Investment Officers for Private Markets manage the System’s real estate and private equity investments, as well as the allocations to infrastructure and timber. The Chief Investment Officer and the six 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, 2022, the fair value of the System’s global equity portfolio was \$10.6 billion. The strategy is executed through external managers investing domestically and internationally. Active strategies are utilized for approximately 43.2 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, 2022:



DOMESTIC EQUITY

Domestic equities represent 51.2 percent of the total public equity portfolio and 22.3 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.

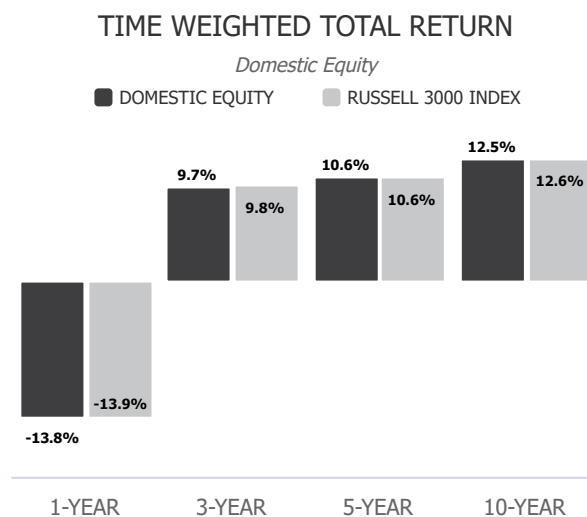
INTERNATIONAL EQUITY

International equities represent 48.8 percent of the total public equity portfolio and 21.2 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, 90 percent of this portfolio is actively managed. The System has retained four 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

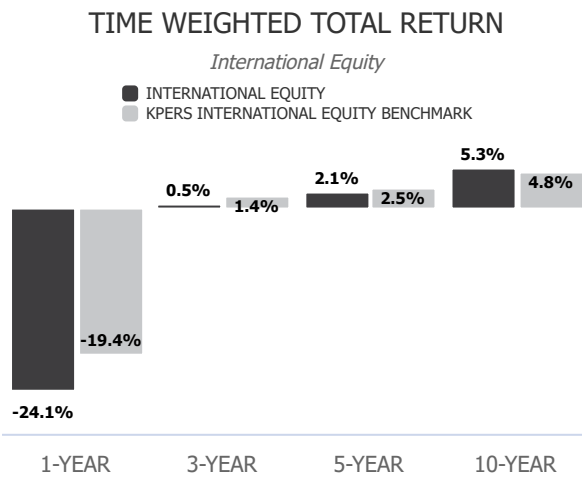
The return of the System’s domestic equity portfolio was in line with the portfolio’s benchmark during Fiscal Year 2022. The domestic equity portfolio produced a negative 13.8 percent total return during the fiscal year. Over longer time periods, the return on the domestic equity portfolio was also in line with its benchmark, as expected, given its purely passive approach.

The following chart reports the performance of the domestic equity portfolio:



The return of the international equity portfolio was negative and below the benchmark return during Fiscal Year 2022. The international equity portfolio produced a total return of negative 24.1 percent for the fiscal year, relative to the negative 19.4 percent return for the benchmark. The System's four active international equity managers underperformed the benchmark during Fiscal Year 2022. Over very long time periods, the international equity portfolio has produced positive relative returns, as active management has added value relative to the benchmark.

The following chart reports the performance of the international equity portfolio:

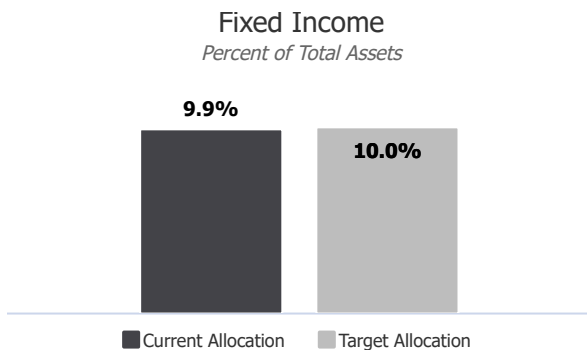


FIXED INCOME INVESTMENTS

As of June 30, 2022, the Retirement System's fixed income portfolio had a fair value of \$2.4 billion, representing 9.9 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. Two investment managers manage this strategy.

PORTFOLIO STRUCTURE

The following graph describes the current and target allocations at June 30, 2022:



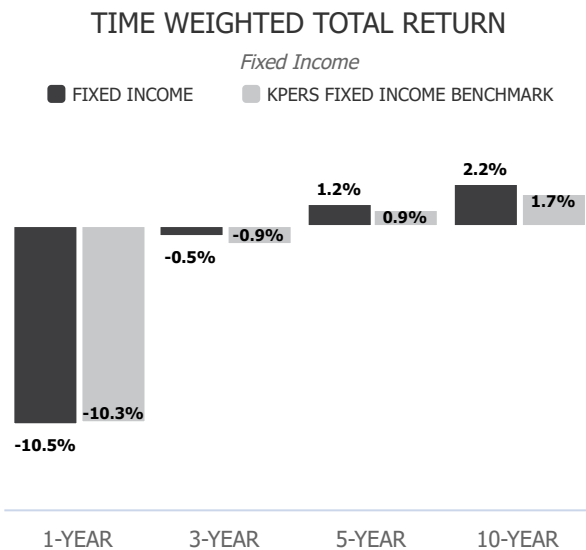
CORE U.S. FIXED INCOME

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 Bloomberg U.S. Aggregate Index as the benchmark.

PERFORMANCE

The core U.S. fixed income portfolio produced a total return of negative 10.5 percent during Fiscal Year 2022, slightly underperforming the benchmark return of negative 10.3 percent. One investment manager underperformed the benchmark during the period, while the other investment manager performed in line with the benchmark. Over longer periods the fixed income portfolio has produced positive relative returns, as active management has added value.

The following chart reports the performance of the fixed income portfolio:

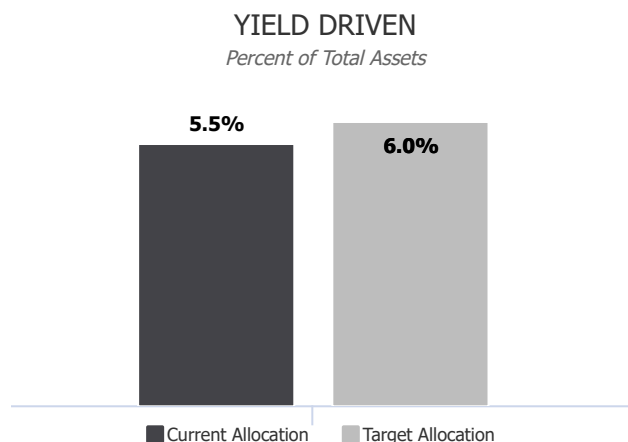


YIELD DRIVEN INVESTMENTS

As of June 30, 2022, the System's yield driven portfolio had a fair value of \$1.3 billion representing 5.5 percent of total assets. The strategy is actively managed by two strategic fixed income managers and one REIT 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, 2022:



STRATEGIC FIXED INCOME

The strategic fixed income strategy represents approximately 73.6 percent of the total yield driven portfolio and 4.0 percent of total assets. Performance of the strategy is currently measured against the Bloomberg U.S. High Yield 2 percent Issuer Cap Index. The strategic fixed income portfolio maintains a minimum investment of 70 percent in high yield corporate debt securities. One of the System’s two strategic fixed income managers produced positive relative returns, while the second manager underperformed the benchmark during Fiscal Year 2022.

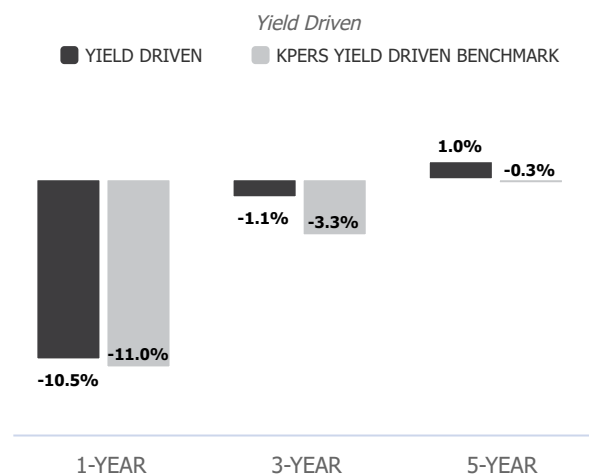
REAL ESTATE INVESTMENT TRUSTS (REITS)

REITs represent 26.4 percent of the yield driven asset class and 1.5 percent of the System’s total assets. This strategy is benchmarked against the MSCI U.S. REIT Index. The System’s publicly-traded real estate securities portfolio is implemented through one manager that actively invests in domestic REITs, real estate operating companies (REOCs) and related investment vehicles. The REIT manager produced a negative total return but outperformed the benchmark during Fiscal Year 2022.

PERFORMANCE

The yield driven portfolio produced a total return of negative 10.5 percent in Fiscal Year 2022, slightly outperforming the asset class benchmark return of negative 11.0 percent. The yield driven portfolio has delivered positive relative returns over longer time periods.

TIME WEIGHTED TOTAL RETURN

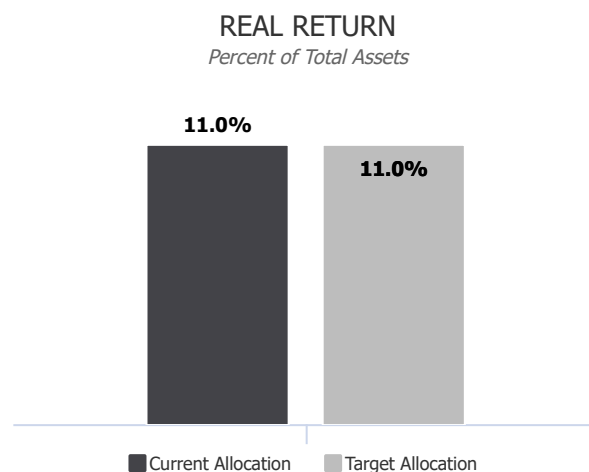


REAL RETURN INVESTMENTS

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 fair value of \$2.7 billion as of June 30, 2022.

PORTFOLIO STRUCTURE

The following graph describes the current and target allocations at June 30, 2022:



U.S. TREASURY INFLATION LINKED BONDS (TIPS)

The TIPS portfolio represents 43.8 percent of the real return portfolio and is benchmarked against the Bloomberg 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 2022, as expected, producing a negative 5.1 percent total return.

GLOBAL INFLATION LINKED BONDS (GILBS)

The GILB portfolio represents 33.2 percent of the real return portfolio and is benchmarked against the Bloomberg 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. In Fiscal Year 2022, the GILB portfolio produced a negative 7.7 percent total return.

TIMBER

Timber investments are a component of the System's real return asset allocation due to their historically high correlation to inflation and comprised 5.7 percent of the real return portfolio. 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 2022, the System's timber investments produced an 8.8 percent total return, underperforming the strategy benchmark and outperforming the real return asset class benchmark.

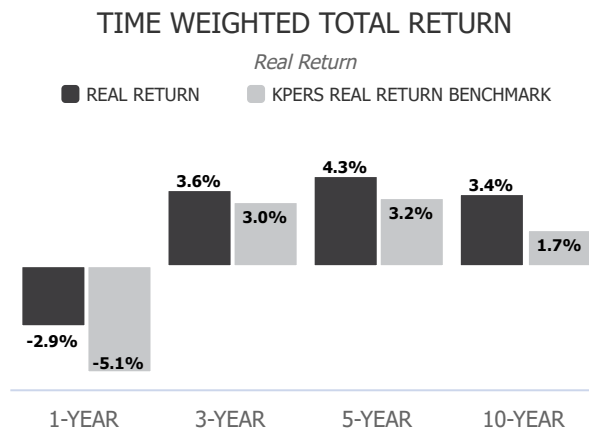
INFRASTRUCTURE

The infrastructure portfolio represents 17.3 percent of the real return portfolio. The System's four infrastructure managers have been successful in operating their infrastructure investments. The System's infrastructure portfolio is well diversified, with investments in Australia, Europe, and throughout North and South America. It is invested across multiple sectors, including renewable power, toll roads, electric utilities, airports, seaports and energy. The infrastructure portfolio produced a total return of 10.3 percent for the fiscal year, underperforming the strategy benchmark by 2.7 percent and outperforming the real return asset class benchmark.

PERFORMANCE

The System's real return portfolio outperformed its benchmark in Fiscal Year 2022, producing a negative 2.9 percent total return against a benchmark return of negative 5.1 percent. Infrastructure was the strongest performing investment strategy in the asset

class. The real return portfolio has outperformed its benchmark over the one, three, five, and ten year time periods ending June 30, 2022.

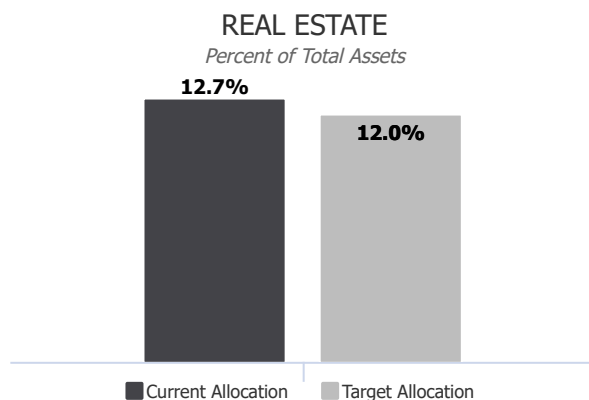


REAL ESTATE INVESTMENTS

As of June 30, 2022, the real estate portfolio had a fair value of \$3.1 billion, representing 12.7 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 "non-core." The "core" portion of the portfolio is targeted at a 75 percent allocation, while the "non-core" 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 eight commingled funds.

The System continued to invest into pooled real estate investment funds during Fiscal Year 2022. 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.

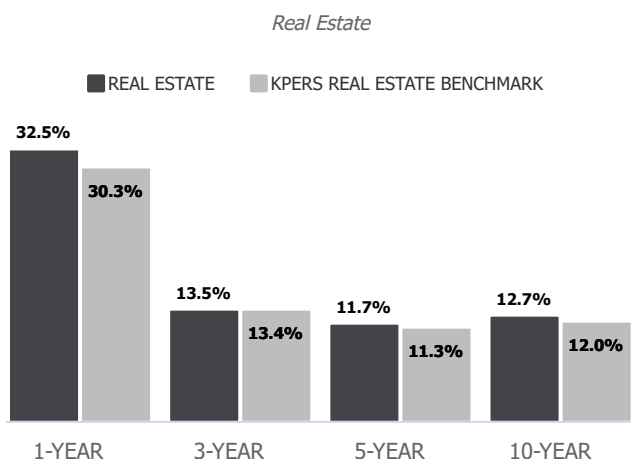
NON-CORE REAL ESTATE

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

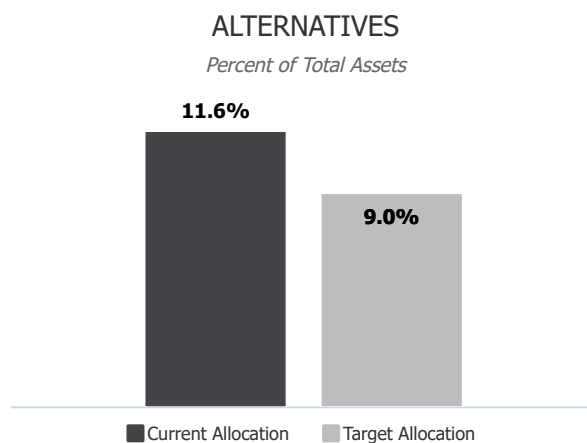
The System's real estate portfolio outperformed its benchmark in Fiscal Year 2022. The core real estate portfolio produced a total return of 29.0 percent, underperforming the strategy benchmark by 0.5 percent, while the non-core real estate portfolio outperformed its benchmark by 15.1 percent, with a total return of 47.6 percent. In total, the System's real estate portfolio produced a total return of 32.5 percent, which outperformed the benchmark return by 2.2 percent. Overall, most of the System's real estate fund investments continued to benefit from an improving economic landscape, with the majority generating positive returns. Longer term results from the real estate asset class produced a 12.7 percent total return for the trailing ten years, exceeding the asset class benchmark total return of 12.0 percent.

TIME WEIGHTED TOTAL RETURN



ALTERNATIVE INVESTMENTS

As of June 30, 2022, the System's alternative investment portfolio had a fair value of \$2.8 billion, representing 11.6 percent of the total portfolio. Since the inception of the alternative investment program in 1997 through June 30, 2022, the System has committed \$4.8 billion to 133 funds with 59 general partners.



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 99.9 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 \$3.7 billion to 79 funds with 28 general partners.

The second portfolio is the Alternative Investment Portfolio (AIP) which represents 0.1 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

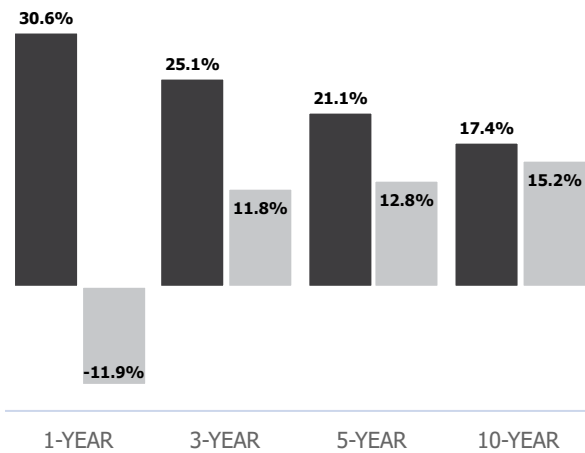
The System’s alternative investments portfolio outperformed its benchmark in Fiscal Year 2022, producing a 30.6 percent total return against a benchmark return of negative 11.9 percent.

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 outperforming this objective over the ten year time period, with a total return of 17.4 percent.

TIME WEIGHTED TOTAL RETURN

Alternative Investments

- ALTERNATIVE INVESTMENTS
- KPERS ALTERNATIVE INVESTMENTS BENCHMARK



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, 2022

| Description | Cost | Net Asset Value |
|---|---------------|-----------------|
| Apax Europe IX, L.P. | \$ 43,650,962 | \$ 99,837,694 |
| Apax Europe X, L.P. | 21,710,964 | 28,956,651 |
| Apollo Investment Fund VII, L.P. | 5,455,420 | 389,964 |
| Apollo Investment Fund VIII, L.P. | 29,895,719 | 31,630,837 |
| Apollo Investment Fund IX, L.P. | 33,734,671 | 49,944,147 |
| Ares Corporate Opportunities Fund III, L.P. | 3,369,921 | 577,453 |
| Ares Corporate Opportunities Fund IV, L.P. | 9,184,473 | 11,975,754 |
| Ares Corporate Opportunities Fund V, L.P. | 56,393,059 | 73,591,082 |
| Ares Corporate Opportunities Fund VI, L.P. | 24,000,205 | 26,583,371 |
| Ares Special Situations Fund IV, L.P. | 47,686,469 | 36,856,347 |
| Audax Mezzanine Fund III, L.P. | 2,205,661 | 991,822 |
| Beacon Group Energy Fund II, L.P. | 1,841,499 | 494,586 |
| Capital Resource Partners IV, L.P. | 1 | - |
| CCMP Capital Investors III, L.P. | 18,669,895 | 23,199,902 |
| Centerbridge Capital Partners II, L.P. | 16,361,208 | 3,200,007 |
| Centerbridge Capital Partners III, L.P. | 21,306,062 | 30,899,990 |
| Clayton Dublier & Rice VI, L.P. | 2,998,283 | 9,175 |
| Consolidated Storage Company, Inc. | 34,155 | 34,155 |
| Crestview Partners III, L.P. | 32,770,217 | 44,406,102 |
| Cypress Merchant Banking II, L.P. | 6,889,672 | 8,178 |
| Encap Energy Capital VIII, L.P. | 15,856,524 | 12,367,629 |
| Encap Energy Capital IX, L.P. | 26,619,166 | 20,457,175 |
| Encap Energy Capital X, L.P. | 37,362,146 | 52,806,014 |
| First Reserve Fund XII, L.P. | 17,254,620 | 897,913 |
| FS Equity Partners VII, L.P. | 35,500,632 | 48,044,354 |
| FS Equity Partners VIII, L.P. | 40,098,687 | 69,858,689 |
| Green Equity Investors VII, L.P. | 53,000,965 | 111,193,852 |
| Green Equity Investors VIII, L.P. | 38,446,768 | 41,456,419 |
| GSO Capital Solutions Fund, L.P. | 6,654,891 | 256,626 |
| GSO Capital Solutions Fund II, L.P. | 13,566,575 | 4,350,801 |
| GSO Capital Solutions Fund III, L.P. | 13,778,008 | 11,779,205 |
| Halpern Denny Fund III, L.P. | 1 | - |
| HD Access, Inc. | 180,137 | 105,395 |
| Hellman & Friedman VII, L.P. | 816,715 | 3,138,949 |
| Hellman & Friedman VIII, L.P. | 30,897,202 | 71,314,419 |
| Hellman & Friedman IX, L.P. | 66,776,443 | 92,426,477 |
| Hellman & Friedman X, L.P. | 38,485,171 | 41,768,302 |
| JMI Equity Fund VII, L.P. | 3,462,412 | 1,773,302 |
| JMI Equity Fund X, L.P. | 19,730,905 | 25,278,979 |
| Montagu IV, L.P. | 3,381,254 | 5,982,258 |
| Montagu V, L.P. | 41,586,708 | 65,975,404 |
| Montagu VI, L.P. | 14,933,457 | 16,040,109 |
| New Enterprise Associates 13, L.P. | 4,613,839 | 3,612,502 |
| New Enterprise Associates 16, L.P. | 43,801,308 | 65,801,260 |

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

As of June 30, 2022

| Description | Cost | Net Asset Value |
|---|-------------------------|-------------------------|
| New Enterprise Associates 17, L.P. | 32,252,096 | 45,482,294 |
| New Enterprise Associates 18, L.P. | 2,580,000 | 2,511,818 |
| NEA 18 Venture Growth Equity | 3,960,000 | 3,659,325 |
| New Mountain Partners V, L.P. | 41,226,613 | 91,708,477 |
| New Mountain Partners VI, L.P. | 20,802,299 | 23,381,472 |
| OCM Opportunities Fund VIIb, L.P. | - | 12,318 |
| OneLiberty Fund IV, L.P. | 273,798 | 67,830 |
| OneLiberty Ventures 2000, L.P. | 10,141,103 | 637,886 |
| Pine Brook Capital Partners, L.P. | 7,293,819 | 1,345,659 |
| Pine Brook Capital Partners II, L.P. | 40,530,870 | 58,102,948 |
| Platinum Equity Capital Partners III, L.P. | 9,563,932 | 10,993,922 |
| Platinum Equity Capital Partners IV, L.P. | 47,788,807 | 92,169,841 |
| Platinum Equity Capital Partners V, L.P. | 43,966,100 | 63,666,386 |
| Quad-C Partners IX, L.P. | 31,517,603 | 46,570,000 |
| Quad-C Partners X, L.P. | 9,217,787 | 10,119,996 |
| Snow Phipps II, L.P. | 12,616,430 | 15,128,803 |
| Snow Phipps III, L.P. | 22,229,658 | 32,742,507 |
| TA XII, L.P. | 41,516,819 | 85,849,557 |
| TA XIII, L.P. | 36,957,213 | 58,367,413 |
| TA XIV, L.P. | 20,250,000 | 19,377,205 |
| TowerBrook Investors III, L.P. | 3,982,077 | 140,038 |
| TowerBrook Investors IV, L.P. | 16,118,239 | 38,289,876 |
| TowerBrook Investors V, L.P. | 37,669,590 | 46,599,091 |
| TPG Growth II, L.P. | 3,432,724 | 914,395 |
| TPG Growth III, L.P. | 27,221,420 | 34,206,300 |
| TPG Growth IV, L.P. | 28,650,855 | 51,864,809 |
| TPG Growth V, L.P. | 21,110,555 | 27,736,905 |
| TPG Partners VI, L.P. | 7,629,609 | 1,469,165 |
| TPG Partners VII, L.P. | 35,274,117 | 51,555,591 |
| TPG Partners VIII, L.P. | 35,999,993 | 54,280,897 |
| VantagePoint Venture Partners IV, L.P. | 7,596,229 | 51,852 |
| Vestar Capital Partners IV, L.P. | 1,373,358 | 170,542 |
| Vista Equity Partners Fund IV, L.P. | 9,300,598 | 23,279,183 |
| Vista Equity Partners Fund V, L.P. | 44,583,487 | 105,324,609 |
| Vista Equity Partners Fund VI, L.P. | 57,696,950 | 112,836,598 |
| Vista Equity Partners Fund VII L.P. | 51,802,743 | 79,669,252 |
| Warburg Pincus Equity Partners, L.P. | - | 78,456 |
| Warburg Pincus Global Growth, L.P. | 62,952,369 | 87,987,519 |
| Warburg Pincus Private Equity X, L.P. | 161,377 | 1,088,297 |
| Warburg Pincus Private Equity XI, L.P. | 13,488,079 | 23,550,266 |
| Warburg Pincus Private Equity XII, L.P. | 42,740,821 | 87,293,682 |
| Warburg Pincus Global 14, L.P. | 3,639,897 | 3,639,897 |
| Wellspring Capital Partners V, L.P. | 8,782,634 | 8,008,480 |
| Wellspring Capital Partners VI, L.P. | 60,307,693 | 90,733,588 |
| Windjammer Mezzanine & Equity Fund II, L.P. | - | 84,494 |
| | <u>\$ 1,961,163,411</u> | <u>\$ 2,823,022,689</u> |

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

LIST OF LARGEST HOLDINGS ⁽¹⁾

As of June 30, 2022

| EQUITIES | | | | FIXED INCOME | | |
|-----------|--------------------------|-----------------|-------------|-----------------|--------------------|-----------------|
| Shares | Security | Fair Value (\$) | Par Value | Security | Description | Fair Value (\$) |
| 2,192,629 | Apple Inc | \$299,776,237 | 184,573,777 | State Street TR | STIF FUND | \$184,573,777 |
| 1,073,473 | Microsoft Corp | 275,700,071 | 148,265,000 | US Treasury N/B | 2.875% 30 Apr 2029 | 146,527,334 |
| 1,275,508 | Amazon.com Inc | 135,471,705 | 106,560,000 | US Treasury N/B | 3.250% 15 May 2042 | 103,996,166 |
| 8,842,400 | AIA Group Ltd | 95,839,290 | 84,565,000 | US Treasury N/B | 2.875% 15 May 2052 | 79,874,179 |
| 43,121 | Alphabet Inc CL A | 93,971,870 | 62,315,000 | US Treasury N/B | 2.750% 30 Apr 2027 | 61,472,501 |
| 760,805 | Nestle SA Reg | 88,561,246 | 58,935,000 | US Treasury N/B | 2.875% 15 May 2032 | 58,271,981 |
| 39,453 | Alphabet Inc CL C | 86,301,465 | 54,525,000 | US Treasury N/B | 0.125% 31 Jan 2023 | 53,756,198 |
| 121,710 | Tesla Inc | 81,961,948 | 50,000,000 | Treasury Bill | 0.010% 26 Jan 2023 | 49,293,000 |
| 1,740,259 | Tencent Holdings LTD | 78,597,135 | 44,015,000 | US Treasury N/B | 2.750% 15 May 2025 | 43,677,845 |
| 4,555,883 | Taiwan Semiconductor Mfg | 72,934,579 | 40,000,000 | Treasury Bill | 0.010% 23 Feb 2023 | 39,370,800 |

(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, 2022

| | June 30, 2021 Fair Value | Purchases and Other Increases | Sales and Other Decreases | June 30, 2022 Fair Value | Asset Mix Fair Value |
|--|-----------------------------|-------------------------------------|------------------------------|-----------------------------|-------------------------|
| Marketable Securities | | | | | |
| Domestic Equities | \$ 7,709,569 | \$ 826,889 | \$ (2,420,781) | \$ 6,115,677 | 25.11% |
| International Equities | 5,737,807 | 3,873,767 | (4,875,988) | 4,735,586 | 19.44 |
| Total Fixed | 5,830,762 | 11,616,694 | (11,323,927) | 6,123,529 | 25.14 |
| Temporary ⁽²⁾ Investments | 352,284 | 28,076,335 | (27,573,657) | 854,962 | 3.51 |
| Total Marketable Securities | 19,630,422 | 44,393,685 | (46,194,353) | 17,829,754 | 73.20 |
| Real Estate and Alternative Investments | | | | | |
| Real Estate | 2,926,556 | 780,080 | - | 3,706,636 | 15.21 |
| Alternatives | 2,347,704 | 523,782 | (48,454) | 2,823,032 | 11.59 |
| Total Real Estate and Alternative Investments | 5,274,260 | 1,303,862 | (48,454) | 6,529,668 | 26.80 |
| Total | \$ 24,904,682 | \$ 45,697,547 | \$ (46,242,807) | \$ 24,359,422 | 100.00% |

(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 Ended June 30, 2022

| Broker Name | Commissions Paid | Shares | Commissions per Share | Percent of Total Commissions |
|---------------------------------|---------------------|-------------------|--------------------------|---------------------------------|
| JP Morgan Securities, LLC | \$ 70,547 | 2,224,305 | 0.032 | 18.4% |
| Liquidnet, Inc | 53,963 | 2,631,222 | 0.021 | 14.1 |
| Wells Fargo Securities, LLC | 46,108 | 1,840,057 | 0.025 | 12.0 |
| Morgan Stanley Co., Inc | 46,036 | 3,119,814 | 0.015 | 12.0 |
| Bank of America Securities, Inc | 35,080 | 2,591,065 | 0.014 | 9.1 |
| Citigroup Global Markets, Inc | 33,405 | 1,120,803 | 0.030 | 8.7 |
| Goldman Sachs & Co., LLC | 18,210 | 3,774,340 | 0.005 | 4.8 |
| Raymond James & Associates, Inc | 11,017 | 934,644 | 0.010 | 2.9 |
| Stifel Nicolaus + Co., Inc | 9,450 | 252,351 | 0.040 | 2.5 |
| Barclays Capital | 8,732 | 659,576 | 0.013 | 2.3 |
| Evercore ISI | 8,189 | 235,070 | 0.035 | 2.1 |
| Pershing, LLC | 7,086 | 885,789 | 0.010 | 1.9 |
| RBC Capital Markets, LLC | 5,189 | 197,709 | 0.030 | 1.4 |
| Other | 29,791 | 3,728,221 | 0.008 | 7.8 |
| Total Broker Commissions | <u>\$ 382,803</u> | <u>24,194,966</u> | | <u>100.0%</u> |