



**KENTUCKY PUBLIC PENSIONS AUTHORITY**

**David L. Eager, Executive Director**

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**MEMORANDUM**

TO: State News Media  
FROM: Kentucky Retirement Systems  
DATE: October 27, 2021  
SUBJECT: Notice of Meeting

The Kentucky Retirement Systems Investment Committee will hold their quarterly meeting on Wednesday, November 3, 2021 at 10:00 a.m. (Eastern) via live video teleconference pursuant to Kentucky Revised Statutes Section 61.826. A portion of this meeting may be held in closed session.

The Investment Committee will meet to discuss items on the agenda. If you would like to submit a public comment to be read during the meeting, please email your comment, full name and affiliation to [BoardsPublicComment@kyret.ky.gov](mailto:BoardsPublicComment@kyret.ky.gov) no later than 8:00 a.m. Eastern Time on Wednesday, November 3, 2021. Comments received cannot exceed 3 (three) minutes.

You can view this meeting in the upper lobby of the 1260 Louisville Road building via video feed, or watch the livestream of this meeting by going to the KPPA Facebook page on the date and time of the meeting.

cc: Board of Trustees  
Media List

**Kentucky Retirement Systems  
Investment Committee Meeting  
Wednesday, November 3, 2021 at 10:00 a.m.  
Via Video Teleconference and Facebook Live  
(Members of the public can view a stream of the meeting at 1260 Louisville  
Road, Frankfort, KY)  
AGENDA**

1. Call to Order – Prewitt Lane
2. Roll Call – Carol Johnson
3. Public Comment – Carol Johnson
4. Approval of Minutes\*- August 24, 2021 – Prewitt Lane
5. Investment Policy Statement\* – Prewitt Lane/Steven Herbert
6. Performance Report – Steven Herbert
7. Axiom Investors Selection Update – Joe Gilbert
8. Adjourn

*\* Committee Action May be Taken*

**MINUTES OF MEETING  
KENTUCKY RETIREMENT SYSTEMS  
INVESTMENT COMMITTEE MEETING  
AUGUST 24, 2021 AT 10:00A.M.  
VIA LIVE VIDEO TELECONFERENCE**

At the August 24, 2021 Investment Committee Meeting, the following members were present: Prewitt Lane (Chair), John Cheshire, Kelly Downard, Keith Percy, and Joseph Grossman. Staff members present were David Eager, Steven Herbert, Rebecca Adkins, Erin Surratt, Michael Board, Victoria Hale, Jared Crawford, Steve Willer, Anthony Chiu, Joseph Gilbert, Carol Johnson, Ashley Gabbard, Sherry Rankin, Crystal Smith, Shaun Case, Phillip Cook, and Glenna Frasher. Also in attendance were Danny White and Janie Shaw from GRS.

Mr. Prewitt Lane called the meeting to order.

Ms. Victoria Hale read the Legal Public Statement.

Ms. Carol Johnson called roll.

Mr. Lane introduced agenda item *Public Comment*. Ms. Carol Johnson stated that no public comments were submitted.

Mr. Lane introduced agenda item *Approval of Minutes – May 4, 2021*. Mr. Joe Grossman made a motion and Mr. John Cheshire seconded to approve the minutes as presented. The motion carried.

Mr. Lane introduced agenda item *Discussion of Standard Reports*. Mr. Steven Herbert began by stating that this is a bit of housekeeping in that prior to the split standardized reports were given to the Board as a whole. He wanted to give an overview of the Reports that were being given to the Board previously, and describe how these reports will look going forward. Mr. Herbert stated that some of the reports, such as the Monthly Report, are currently being posted on the website, and will most likely continue to be going forward. Other reports, such as the Commissions Report and

Capital Calls Report could be replaced with reports that provide information that is more meaningful to the Board for planning purposes when it comes to private assets. Mr. Herbert just wanted to address the issue and wanted the Committee to know he is doing research on what reports would be more beneficial. For example, he suggested doing a Transaction Cost Analysis type of report on a periodic basis or having an asset class with a manager at each meeting going forward. In summary, Mr. Herbert would just like to see better reporting that would be more beneficial to the Committee as a whole. Mr. Lane followed up with stating that great progress is being made to provide information that is more meaningful rather than an information dump and that will just strengthen the Committee's fiduciary responsibilities.

Mr. Lane introduced agenda item *Performance Report*. Mr. Lane began by making an editorial comment stating that he wanted to give credit to the staff for a great job this past year. When looking at the long-term performance, the asset mix is the determining factor on whether or not the Board was successful in meeting their goals. Underneath that is the ability to choose managers who create excess return over and above their goals and the staff has done an amazing job the last couple of year in positioning the plans. Many of the managers have out-performed their benchmarks and that is a great commendation to the investment staff who were able to get the plans into that position. Mr. Herbert then spoke about the time constraints of the meeting and that he would not be reviewing the full report, but wanted to highlight a few areas. Mr. Herbert went over the market performance during the last quarter. Mr. Herbert then reviewed the Asset Allocation vs Targets chart, Risk Categorization Summary, Total Performance, Total Asset Allocation Over Time, Total Summary Growth Chart, for the KERS Plans, the SPRS Plan, and the Insurance Trust Plan were all reviewed by Mr. Herbert. Mr. Grossman asked Mr. Herbert if he had a timeframe for when the Plans would get back into compliance with the allocations set forth in the IPS? Mr. Herbert responded that he thinks with real estate, it may take a little longer and it may be by the end of the year. Mr. Grossman then commented that he wasn't pushing to get there, but felt like they needed to discuss and understand why the Plans are outside the IPS and then decide if it's good or not. He felt like discussions were needed about where we are outside of the allocations within the IPS, why we are outside, and if and/or when we would back within them. Mr. Herbert answered that the reason we are outside of the real estate allocation is due to policy change and the inability to get a new manager; for the real returns it is more due to market issues.

Changes are being implemented and he is hopeful that things will align closer to the allocations more toward the end of the year. Mr. Lane remarked that through the years the staff has brought forth several discussions about things such as farm land, timber, things that after researching it further, while they are real returns, the cash on cash doesn't exceed our 6 ¼ so it makes it difficult. While they look like they would have a good return, it just is not a good enough real return. Mr. Grossman indicated he did not disagree but only wanted to ensure that it was at least discussed and preserved in the minutes of the meetings.

Mr. Lane introduced agenda item *Public Equity Search*. Mr. Lane began by indicating this was an excellent search in a relatively difficult space. The decision was made earlier in the year to expand into the non-US market, specifically the Small Cap market. That is a much less efficient market, but does respond well with good management. The search was completed with the assistance of Wilshire and Associates, who worked with investment staff throughout the process. One unique aspect of this search was that once a short list was compiled of the final candidates, Wilshire and the investment staff conducted reviews of the candidates independently and then brought their findings together afterwards. This process just added another risk factor layer. Mr. Joe Gilbert reviewed his report on the External Manager Search and Section Report for Non-US Small Cap Equity. The report was a review of the competitive search process utilized by the investment staff in accordance with the Investment Policy Statement and the Investment Procurement Policy in an effort to improve market access within the Non-US equity allocation. Utilizing the database from Wilshire and Associates containing over 12,000 strategies, and applying the screening criteria, narrowed the list to 11 candidates. Those 11 candidates were sent a Request for Information, which the investment staff and Wilshire reviewed independently of each other, and a list of the top five potential candidates was formed. These five finalists were given the opportunity for presentations before the final decision was made. The finalist was a company called Axiom, founded in 1998 and headquartered in Connecticut. Axiom is a 100% employee owned company whose focus is on global, international, and emerging market strategies. Mr. Gilbert reviewed Axiom's Investment Philosophy, Investment Process, and Portfolio Construction. Mr. Gilbert stated that the investment team is not asking the Board to invest in a new market, as KRS has been investing in Non-US small cap for quite some time, staff just feels they can do it in a more efficient manner that's likely to produce an out performance over a market cycle. The investment team

would recommend funding the Axiom mandate from the existing mandates in Northern Trust and Black Rock. The initial funding would be at the current 3.2% level, and staff is seeking approval for up to 5% to allow for future growth and rebalancing. Mr. Kelly Downard asked if it was staff's plan to grow the fund from 3.2% to 5% initially? Mr. Gilbert responded that no, the initial plan is to invest at the same 3.2%, and as staff gains experience with the strategy and sees what different opportunities in the market unfold, they wanted the ability to rebalance if an opportunity presents itself, and it is to the Plan's advantage. Mr. Downard asked a question on whether staff has this same flexibility with our other managers. Mr. Gilbert indicated that staff does, but historically staff had made recommendations based on a dollar amount, and as the portfolio grew, there became a need to transition to a percentage basis instead of a dollar amount basis. Mr. Joseph Grossman asked the question about whether the IPS lists a minimum and maximum so that this flexibility is already built in. Mr. Gilbert indicated that they are at the asset level, but these are at an individual strategy level. Mr. Grossman then asked if staff was just asking the Board to give them the flexibility here that staff has in the overall IPS. Mr. Herbert responded yes, the IPS does have the flexibility to add and subtract from specific strategies. Mr. Grossman asked a question regarding the fees. He referenced a figure stated by Mr. Gilbert in his presentation, which was a fee of 68 basis points, but is the Plan currently paying a fee in their current active management. Mr. Gilbert indicated that yes, the Plan is paying a fee currently, and these fees would be higher obviously because we are in an export portfolio. Mr. Gilbert indicated that the investment team is very mindful of fees, and would only suggest moving forward if it was to the Plans advantage. Mr. Larry Totten asked a question regarding a chart shown in Mr. Gilbert's presentation where it shows that as of June 30, 2021, there was \$159.2 million invested, and then a different chart is showing that we will be investing \$159.2 million with Axiom. The question was whether Axiom is just taking over the management? Mr. Gilbert indicated that currently the \$159.2 million is invested over two portfolios, Northern Trust and Black Rock, so if approved, the Plans will be transitioning those funds to Axiom. Mr. Cheshire made a motion and Mr. Grossman seconded to retain Axiom Investors as the manager for the Non-US Small Cap Equity mandate, subject to successful contract negotiations. The motion carried. Mr. Grossman questioned what would occur if the CERS Investment Committee did not vote to retain Axiom. Mr. David Eager mentioned that the vote would have to be revisited if that would occur.

Mr. Lane introduced agenda item *Research Management System Presentation*. Mr. Steven Herbert reviewed the software program that is intended to centralize the manager research assets to bring efficiency to internal document processes. The main purpose is to not only assist the Division Directors, but will be able to assist with investment reporting and compliance as well. Mr. Herbert provided some screenshots of what a “wall” would look like and how much information can be monitored using this program. Mr. Herbert indicated that this is an ongoing project and is hopeful to be using this toward the end of the year.

Mr. Lane introduced agenda item *GRS Stress Test*. Mr. David Eager commented that this is becoming an increasingly used process of most state retirement systems. Mr. Eager was recently asked at the PPOB meeting whether the Plans would be conducting a stress test, and Mr. Eager was able to respond that this is already in the process. There is an awareness of the tool and a growing appreciation for the information it can provide. Mr. Danny White and Ms. Janie Shaw presented the 2020 Stress Test Analysis for the Kentucky Retirement Systems. This report was based on the June 30, 2020 Actuarial Valuation, but does not reflect the 2021 legislation nor does it reflect the 2021 investment experience. The analysis types include contribution risk, investment return volatility, stochastic simulations, deterministic projections and outcome based events. Mr. White then reviewed the Investment Return Volatility chart and the outcome based events. He indicated that this stress test was only performed on the Pension Funds, but the same would hold true with the Insurance Trust Funds. Ms. Shaw reviewed the key points derived from the test. Prior to the passing of House Bill 8, for the KERS Non-Hazardous Pension Fund, there was a continual decline in covered payroll that was a significant risk to the participating employers. Even with the passing of House Bill 8, the contribution risk is still a significant risk to the KERS fund because of its current funded status. Ms. Shaw indicated that the biggest risk to the KERS Non-Hazardous Pension Fund is still receiving less than the actuarially determined contributions. In 2019, the amortization period reset to 30 years, and while that is not necessarily bad, if it occurs more frequently, it can cause further detriment to the fund. Ms. Shaw then discussed the investment risk of the KERS Non-Hazardous Pension Fund, citing the significant less risk to the fund as measured by the change in required contributions. This is because it has a relatively lower funded ratio than the other systems. Ms. Shaw then moved to the KERS Hazardous Pension Fund, which has the most investment risk, measured by the change in contribution rate. This is because

it is significantly better funded than the other two funds. Ms. Shaw indicated that the projected funded ratio is expected to improve under the “more likely than not” scenarios. This is in part because of the relatively strong funding policy. Ms. Shaw then reviewed the key points in the State Police Retirement System Pension Fund, which is more similar to the KERS Non-Hazardous Pension Fund. The biggest risk to the SPRS Pension Fund is receiving less than the actuarially determined contributions. Again citing the issue of the resetting of the amortization period as a potential detrimental component. Ms. Shaw reported that the contribution rates would continue to increase if covered payroll continues to decline. The potential volatility in future contribution rates for the SPRS Pension Fund is relatively high because the Fund has a higher leverage of liability to payroll. In the SPRS Fund, \$22 in liability for every \$1 in covered payroll, compared to KERS Non-Hazardous Fund where \$11 in liability for every \$1 in covered payroll. This concluded the presentation of the Stress Test performed by GRS. Mr. Grossman asked a question regarding the resetting of the amortization period every 6 years. In that, didn't that occur back in 2019? Mr. Eager spoke and indicated that the amortization did occur in 2019, but the issue would be if they continue to reset it every 6 years or so. Mr. Grossman asked if this was a one-time reset. Mr. White answered that the State claims it was a one-time reset, but has a habit of doing it repeatedly, as this is like the third or fourth time the funding period has been reset to 30 years. With this latest reset, the State did indicate that any new funding is to be based on a 20-year period, so it is hoped that this will break the cycle. Mr. White stated that the biggest risk is the budget risk, of the State not putting in the calculated rate or if they alleviate or try to make the contribution rate smaller. Mr. Eager stated that the Plans now have Ed Owens and John Chilton added to the team. It is one of the Plan's duties to educate the legislators and the governor's office, but the legislators primarily, about the impact of the legislative decisions on the systems. The Plans cannot control the investment returns to a large extent, but we try to understand what might happen; the Plans do not control the payroll; and they do not control the resets of the amortization periods. However, what the Plans can do is educate the legislators on the negative impact of doing these things and now that the Plans have this information, it will be shared with them.

Prior to the adjournment, Lynn Hampton, as a new Trustee, wanted to thank the Committee for the invitation to watch these proceedings. Mr. Eager reported that there are three (3) new Trustees going through orientation later in the week.



Mr. Grossman made a motion and Mr. Cheshire seconded to adjourn the meeting. The motion carried.

Copies of all documents presented are incorporated as part of the Minutes of the Kentucky Retirement Systems Investment Committee meeting held August 24, 2021.

### **CERTIFICATION**

I do certify that I was present at this meeting, and I have recorded the above actions of the Committee on the various items considered by it at this meeting. Further, I certify that all requirements of KRS 61.805-61.850 were met in conjunction with this meeting.

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Recording Secretary

I, as Chair of the Investment Committee of the Board of Trustees of the Kentucky Retirement Systems, do certify that the Minutes of Meeting held on August 24, 2021 were approved by the Committee on November 3, 2021.

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Committee Chair

I have reviewed the Minutes of the August 24, 2021 Investment Committee Meeting of the Board of Trustees of the Kentucky Retirement Systems for content, form, and legality.

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Office of Legal Services

**DRAFT**  
**Kentucky Retirement Systems**  
Investment Policy Statement  
Adopted November 16, 2021

This Investment Policy Statement (“IPS”) is issued by the Board of Trustees (“Board” or “Trustees”) of the Kentucky Retirement Systems (“KRS”) in connection with investing the assets of the Kentucky Employees Retirement System (“KERS”) and the State Police Retirement System (“SPRS”), jointly referred to as “Systems.” This document supersedes all prior documents entitled Statement of Investment Policy or Investment Policy Statement.

## I. Introduction

### A. Purpose

The purpose of this IPS is to define the framework for investing the assets of the Systems. This IPS is intended to provide general principles for establishing the goals, the allocation of assets, employment of outside asset management, and monitoring the results of the Systems.

The pension plans administered by KRS are “Qualified Pension Plans” under Section 401(a) of the Internal Revenue Code. Additionally, Kentucky Revised Statutes 61.701 establishes health insurance benefits to recipients of KERS, and SPRS. Kentucky Revised Statutes 61.702 provides that all amounts necessary to provide for insurance benefits shall be paid to the insurance fund. The Board shall administer the insurance trust fund in the same manner as the pension plans.

### B. Philosophy

The Trustees of KRS recognize their fiduciary duty not only to invest the Systems' assets in formal compliance with the Prudent Person Rule, but also to manage those assets in continued recognition of the basic long-term nature of the Systems. The Trustees interpret this to mean, in addition to the specific guidelines and restrictions set forth in the law and this document, that the assets of the Systems shall be proactively managed -- that is, investment decisions regarding the particular asset classes, strategies, and securities to be purchased or sold shall be the result of the conscious exercise of discretion.

The Trustees recognize that asset allocation is the primary driver of long-term investment performance, and will therefore review asset allocation and asset-liability studies on a regular basis as outlined in Section III of this document. The asset allocation guidelines represent a strategic decision, with the primary aim that the portfolios meet their performance objectives in the long-term while understanding that this may not necessarily occur in the short term.

The Trustees recognize that there is generally an inverse relationship between market efficiency, and the ability for active management to produce alpha. Therefore, investments in efficient markets will be made using index or index-like investments with the goal of replicating index returns with low management fees. Active management will be pursued in less efficient markets, accepting higher tracking error, and paying higher management fees with the expectation of producing excess returns over the long term. This focuses Office of Investments' (“Staff”) and consultant(s) efforts on identifying, selecting, and monitoring managers as well as the overall management fees paid, in the areas of the market most likely to produce excess returns.

The Trustees recognize that, commensurate with their overall objective of maximizing long-term returns while maintaining a high standard of portfolio quality and consistency of return, it is necessary that proper diversification of assets be maintained both across and within the classes of securities held to minimize/mitigate overall portfolio risk. Consistent with carrying out their fiduciary responsibilities, the Trustees will not systematically exclude any investments in companies, industries, countries, or geographic areas unless required to do so by statute. Within this context of proactive management and the necessity for adherence to proper diversification, the Trustees rely upon appropriate professional advice from Staff and multiple service providers.

## II. Responsibilities

The Trustees and other fiduciaries shall discharge their duties with respect to the Systems:

- (1) solely in the interest of the participants and beneficiaries;
- (2) for the exclusive purpose of providing benefits to participants and beneficiaries;
- (3) with the care, skill and caution under the circumstances then prevailing which a prudent person acting in a like capacity and familiar with those matters would use in the conduct of an activity of like character and purpose (Prudent Person Rule);
- (4) impartially;
- (5) incurring and paying appropriate and reasonable expenses of administration and management which may not necessarily be the lowest; and,
- (6) in accordance with a good faith interpretation of the laws, regulations and other instruments governing KRS and the Systems.

Additionally, the Trustees and other fiduciaries shall not engage in any transaction which results in a substantial diversion of the Systems income or assets without adequate security and reasonable rate of return to a disqualified person or in any other prohibited transaction described in Internal Revenue Code Section 503(b) - Prohibited Transactions.

### A. Board of Trustees

The Investment Committee is created by Kentucky Revised Statutes 61.650 and the Board as set forth in the Board's Statement of Bylaws and Committee Organization document. The Board Chair authorizes and appoints members to an Investment Committee with full power to act for the Board in the acquisition, sale and management of the assets of the Systems in accordance with the provisions of any applicable statutes, and policies of the Board. The Board shall review and ratify the actions of the Investment Committee at the Board meeting following the Investment Committee meeting where such action was taken.

### B. Investment Committee

The Investment Committee consists of at least three (3) Trustees appointed by the Governor to the Board pursuant to Kentucky Revised Statutes 61.645(1)(c). Additional members may be appointed by the Board Chair. The Investment Committee acts on behalf of the Board on investment related matters.

The Investment Committee has the following oversight responsibilities:

- A. Assure compliance with this IPS and all applicable laws and regulations.
- B. Approve the selection and termination of service providers. If the need arises to terminate a manager between Board meetings, the Chief Investment Officer ("CIO") will have

discretion to do so after receiving approval from either the Board Chair or the Investment Committee Chair. The Investment Committee and the Board must be notified of the manager termination at the next scheduled Investment Committee and Board meetings.

- C. Meet no less than quarterly to evaluate whether this IPS, the investment activities and management controls and processes continue to be consistent in meeting the Systems' goals. Mandate actions necessary to maintain the overall effectiveness of the investment program.
- D. Review assessment of investment program management processes and procedures, and this IPS relative to meeting stated goals.

#### C. Staff

The Chief Investment Officer is responsible for the administration of investment assets of the Systems consistent with the policies, guidelines and limits established by the law, the Board, and the Investment Committee.

The Chief Investment Officer receives direction from and reports to the Investment Committee on all investment matters, including but not limited to the following:

- i. Maintaining the diversification and risk exposure of the Systems consistent with policies and guidelines.
- ii. Assessing and reporting on the performance and risk exposure of the overall investment program relative to goals, objectives, policies and guidelines.
- iii. Monitoring and assessing service providers to assure that they meet expectations and conform to policies and guidelines.
- iv. Recommending changes to service providers, statutes, policies or guidelines as needed to maintain a productive relationship between the investment program and its goals; acting as liaison on all investment related matters.
- v. Identifying issues for consideration by the Investment Committee and preparing recommendations or reports regarding such matters.
- vi. Preparing, for each proposed investment, a memo to the Investment Committee covering the pertinent details of the investment, including but not limited to: amount of the investment, type of investment, purpose, opportunity/goal, risks, volatility assumptions, liquidity, structure, fees, background of investment firm with reasons for selection, list of other firms considered.

The Chief Investment Officer or designee is authorized to execute trades on fixed income and equity securities (including exchange-traded funds or "ETF's") and to execute proxies for the Board consistent with this IPS.

To carry out the IPS and any investment related decisions of the Board, the, Chief Investment Officer or designee is authorized to execute agreements and other necessary or proper documents pertaining to investment managers, consultants, investment related transactions or other investment functions.

#### D. Investment Managers

In instances where the Investment Committee has determined it is desirable to employ the services of an external Investment Manager, the following shall be applicable:

- i. Investment Managers shall be qualified by the Chief Investment Officer, agree to serve as

a fiduciary to the Systems, and should be of institutional quality as deemed by Staff in consultation with the investment consultant(s).

- ii. Investment Managers shall manage assets in accordance with this IPS and any additional guidelines established by contract, as may be modified in writing from time to time.
- iii. Total assets assigned to the selected manager shall not exceed 25% of that firm's total assets under management and shall not exceed 25% of a firm's total assets under management in a commingled product. Separate accounts or funds of one are not included in this 25% limitation for commingled products.
- iv. The assets managed by any one active or passive investment manager shall not exceed 15% of the overall assets in the pension and insurance funds per KRS 61.650(5).
- v. All investment management services will be contracted according to the Investment Procurement Policy established by the Board.

#### E. Custody Bank

The Board shall hire custodians and other agents who will be fiduciaries to the Systems and who will assume responsibility for the safekeeping and accounting of all assets held on behalf of the Systems, as well as other duties as agreed to by contract.

#### F. Investment Consultants

Qualified independent investment consultants may be retained by the Systems for asset allocation studies, asset allocation recommendations, performance reviews, manager searches, and other investment related consulting functions and duties as set forth by contract.

#### G. Selection

Qualified investment managers, custody banks, investment consultants, and other investment related service providers shall be selected by the Investment Committee in accordance with the IPS. The selection shall be based upon the demonstrated ability of the professional(s) to provide the required expertise or assistance described in the RFP/RFI (if utilized). In order to create an efficient and effective process, the Investment Committee or Chief Investment Officer may, in their sole discretion, utilize a Request For Information ("RFI"), a Request For Proposals ("RFP"), third party proprietary software or databases, review of existing service provider capabilities, or any combination of these, or other methods to select a service provider.

### III. Asset Allocation Guidelines

In establishing asset allocation guidelines the Board recognizes that each plan and any underlying fund\* have their own capacity to tolerate investment volatility, or risk. The asset allocation guidelines of each Fund will be reviewed annually.

Based on the asset liability study, which analyzes the expected returns, risk, and correlations of various asset classes, projected liabilities, liquidity, and the risks associated with alternative asset mix strategies, the Board has established the following Asset Allocation Guidelines, effective November 12, 2020. The asset classes are "bucketed" or grouped together into macro-asset class buckets (i.e. growth, liquidity and diversifying) based on their expected correlations to one another in order to create a better understanding of risk and diversification, and based on asset class exposures to the economic factors of growth and inflation.

\*KERS Hazardous and Non-hazardous

<b>KERS Hazardous Pension Fund and the KRS Insurance Trust Fund - 6.25% Assumed Rate of Return</b>				
Asset Class	Target	Relative Range (+/-)	Minimum	Maximum
<b>Growth</b>	<b>68.50%</b>	<b>15%</b>	<b>58.23%</b>	<b>78.78%</b>
US Equity	21.75%	30%	15.23%	28.28%
Non US Equity	21.75%	30%	15.23%	28.28%
Private Equity	10.00%	30%	7.00%	13.00%
High Yield / Specialty Credit	15.00%	30%	10.50%	19.50%
<b>Liquidity</b>	<b>11.50%</b>	<b>20%</b>	<b>9.20%</b>	<b>13.80%</b>
Core Fixed Income	10.00%	20%	8.00%	12.00%
Cash	1.50%	100%	0.00%	3.00%
<b>Diversifying</b>	<b>20.00%</b>	<b>15%</b>	<b>17.00%</b>	<b>23.00%</b>
Real Estate	10.00%	30%	7.00%	13.00%
Real Return	10.00%	30%	7.00%	13.00%
<b>Opportunistic</b>	<b>0.00%</b>	<b>n/a</b>	<b>0.00%</b>	<b>5.00%</b>

<b>KERS Non-Hazardous Pension Fund and SPRS Pension Plan - 5.25% Assumed Rate of Return</b>				
Asset Class	Target	Relative Range (+/-)	Minimum	Maximum
<b>Growth</b>	<b>54.50%</b>	<b>15%</b>	<b>46.33%</b>	<b>62.68%</b>
US Equity	16.25%	30%	11.38%	21.13%
Non US Equity	16.25%	30%	11.38%	21.13%
Private Equity	7.00%	30%	4.90%	9.10%
High Yield / Specialty Credit	15.00%	30%	10.50%	19.50%
<b>Liquidity</b>	<b>25.50%</b>	<b>20%</b>	<b>20.40%</b>	<b>30.60%</b>
Core Fixed Income	20.50%	20%	16.40%	24.60%
Cash	5.00%	100%	0.00%	10.00%
<b>Diversifying</b>	<b>20.00%</b>	<b>15%</b>	<b>17.00%</b>	<b>23.00%</b>
Real Estate	10.00%	30%	7.00%	13.00%
Real Return	10.00%	30%	7.00%	13.00%
<b>Opportunistic</b>	<b>0.00%</b>	<b>n/a</b>	<b>0.00%</b>	<b>5.00%</b>

The intent of the Board in allocating funds to the investment managers is for the investment managers to fully invest the funds. However, the Board is aware that from time to time the investment manager will require a portion of the allocated funds to be held in cash provided the cash holdings do not exceed five percent (5%) of the manager's allocation for any given quarter, unless such cash holdings are an integral part of a fixed income manager's investment strategy.

The individual asset allocations of each Pension and Insurance Trust Fund constituent will be reviewed monthly by Staff relative to its target asset class allocation, taking into account any tactical policy shift directed by the Investment Committee.

Regarding individual investment manager initial allocations, Staff will get approval at the Investment Committee meeting for a specific dollar amount intended to be committed to a closed-

end fund such as private equity or real estate funds and will get approval for a percent of the appropriate asset class target for open-end investments such as public equity, public fixed income, and Diversifying Strategies managers. For those open-end funds where assets can be added or subtracted, the Chief Investment Officer will have discretion to reduce or increase an investment manager's allocation between 50% and 150% of the approved target. The target will not be raised prior to the one-year anniversary of the amount approved by the Investment Committee, and must be reported to the Investment Committee at the next scheduled meeting. If the need arises to terminate a manager between Board meetings, the Chief Investment Officer will have discretion to do so after receiving approval from either the Board Chair or the Investment Committee Chair. The Investment Committee and the Board must be notified of the manager termination at the next scheduled Investment Committee and Board meetings.

Short-term market shifts may cause the asset mix to drift from the allocation targets. Should the target percentage fall out of the indicated range for a particular asset class, Staff shall direct rebalancing transactions to reallocate assets from the over-allocated asset class to the under-allocated asset class. Within the allowable ranges, Staff should use regular cash flows to rebalance toward targets to avoid incurring additional trading costs to correct minor deviations from policy targets. Except when there is a perceived extraordinary downside risk in a particular asset class, movement outside the normal ranges should be avoided.

Investments in private assets are generally less liquid than investments in public markets securities and are typically implemented via periodic commitments to funds with limited partnership structures. As a result, actual allocations to these asset classes may deviate from their strategic targets for extended periods. Actual vs. target deviations for these asset classes shall not be considered in violation of the Asset Allocation Guidelines. Under/over weights to these asset classes shall be invested in public markets securities with the most similar risk/return characteristics as a short-term proxy for the private asset classes.

In keeping with its responsibility as a Board and wherever consistent with its fiduciary responsibility, the Board encourages the investment of the System's assets in investments, funds, and securities of corporations which provide a positive contribution to the economy of the Commonwealth of Kentucky. However, where any security is not a prohibited investment under the governing laws and policies, discretion will be granted to the appointed investment managers in the selection of such securities and timing of transactions consistent with the following guidelines and restrictions.

#### A. Growth

##### US Equity

Investment may be made in common stock, securities convertible into common stock, preferred stock of publicly traded companies on stock markets, asset class relevant ETF's or any other type of security contained in a manager's benchmark. Each individual domestic equity account shall have a comprehensive set of investment guidelines prepared, which contains a listing of permissible investments, portfolio restrictions, and standards of performance for the account.

The internally managed equity index funds are intended, to gain exposure to a broad asset sector to replicate the characteristics of the asset class, to minimize administrative expenses, and to help achieve overall portfolio objectives. These objectives can be achieved through several management techniques, including but not limited to, portfolio optimization, non-reinvestment of index dividends, and other management techniques intended to help achieve the objectives of

the Systems.

#### Non-US Equity

Investments may be made in common stock, securities convertible into common stock, preferred stock of publicly traded companies on stock markets, asset class relevant ETF's or any other type of security contained in a manager's benchmark. Each individual Non-US equity account shall have a comprehensive set of investment guidelines, which shall contain a listing of permissible investments, portfolio restrictions, and standards of performance for the account.

#### High Yield/Specialty Credit

High yield/specialty credit investments will be similar in type to those securities found in the Systems' high yield benchmarks and the characteristics of the portfolio will be similar to the Systems' high yield fixed income benchmarks. The high yield fixed income accounts may include, but are not limited to, the following fixed income securities: non-investment grade U.S. corporate credit including both bonds and bank loans, non-investment grade non-U.S. corporate credit including bonds and bank loans, municipal bonds, non-U.S. sovereign debt, mortgages including residential mortgage backed securities, commercial mortgage backed securities, and whole loans, asset-backed securities, and emerging market debt ("EMD") including both sovereign EMD and corporate EMD, and asset class relevant ETF's.

Each individual high yield/specialty credit account shall have a comprehensive set of investment guidelines which contains a listing of permissible investments, portfolio restrictions, risk parameters, and standards of performance for the account.

#### Private Equity Investments

Subject to specific approval of the Investment Committee, investments may be made for the purpose of creating a diversified portfolio of alternative investments. Private equity investments are expected to achieve attractive risk-adjusted returns and, by definition, possess a higher degree of risk with a higher return potential than traditional investments. Accordingly, total rates of return from private equity investments are expected to be greater than those that might be obtained from conventional public equity or debt investments. Examples of such investments include, but are not limited to, private investments into venture capital, leveraged buyouts, special situations, distressed debt, private debt, timberland, oil and gas partnerships, infrastructure, commodities and private placements. While it is expected that the majority of these assets will be invested within the United States, a portion can be allocated to non-US investments. These non-U.S. investments are not restricted by geography.

The private equity market is highly sophisticated and specialized with respect to variety and types of investment structures. There exists major competition for deal flow on the part of both investor and general partners. To a great extent, market forces drive the bargaining of economic terms. Most investment vehicles are structured as commingled vehicles and often blind pool investment partnerships. The most common offering forms are equity private placements where the governing laws of the partnership impose a passive role of the limited partner investor. These contractual arrangements are long-term in nature and provide the general partner or sponsors a reasonable time horizon to wisely invest capital, add value through intensive operational management, then realize the proceeds of such an investment. Moreover, terms of the partnership are proposed by the general partner and are critical to the economic incentives and



ultimate net performance of the partnership.

### **Investment Strategy and Plan Guidelines**

To strengthen the diversification of the investments, several guidelines will be utilized in Staff's formulation and recommended annual investment strategy and plan. These guidelines encompass annual commitment levels to the asset class, types of investment vehicles that can be utilized, controlling financing stage risks, industry, manager and geography concentration/diversification limits, acceptable contract negotiations, appropriate sizes for investments, and the preferred alignment of interests.

*Investment Vehicles:* The Systems will gain exposure to private equity investments by hiring external investment managers either directly or through participation in secondary private equity markets. Typically, KRS will subscribe as a Limited Partner ("LP") to limited partnership vehicles sponsored by such specialty external investment managers. KRS will also at times structure separately managed accounts with specific investment objectives to be implemented by external investment managers. The Systems may also gain exposure by utilizing the following vehicles: limited liability companies and co-investments alongside KRS' existing or potential limited partnerships.

*Investment Timing Risks:* Staff should limit the potential for any one investment to negatively impact the long-term results of the portfolio by investing across business cycles. Moreover, the portfolio must gain exposure to the array of financing stages by opportunistically exploiting the best investments at different stages of the business cycle. Staff may also consider purchasing secondary partnership interests to shorten the effective life of the partnership interest and therefore positively impacting the current and long-term net return of the portfolio. In addition, mindful of vintage year diversification, the Systems should seek to identify attractive commitments annually, further ensuring the portfolio invests across business cycles.

*General Partner Diversification:* Staff will seek to work with a variety of general partners due to their specialized expertise in particular segments of the private equity market and source of their deal flow. No more than fifteen (15) percent of the overall Systems' Pension or Insurance Trust Fund total allocation to private equity investments may be committed to any one partnership, without the approval of the Board.

## **B. Fixed Income/Liquidity**

### **Core Fixed Income**

Core Fixed Income investments will be similar in type to those securities found in the Systems' core fixed income benchmark(s), and the characteristics of the Systems' core fixed income portfolio will be similar to the System' core fixed income benchmarks. The core fixed income accounts may include, but are not limited to the following fixed income securities: U.S. Government and Agency bonds, investment grade U.S. corporate credit, investment grade non-U.S. corporate credit, municipal bonds, non-U.S. sovereign debt, mortgages including residential mortgage backed securities, commercial mortgage backed securities, and whole loans, asset-backed securities, and asset class relevant ETF's.

Each individual core fixed income account shall have a comprehensive set of investment guidelines which contains a listing of permissible investments, portfolio restrictions, risk

parameters, and standards of performance for the account.

#### Cash Equivalent Securities

Selection of particular short-term instruments, whether viewed as liquidity reserves or as investment vehicles, should be determined primarily by the safety and liquidity of the investment and only secondarily by the available yield. The following short-term investment vehicles are considered acceptable: Publicly traded investment grade corporate bonds, variable rate demand notes, government and agency bonds, mortgages, municipal bonds, and collective short-term investment funds ("STIFs"), money market funds or instruments (including, but not limited to, certificates of deposit, bank notes, deposit notes, bankers' acceptances and commercial paper) and repurchase agreements relating to the above instruments. Instruments may be selected from among those having an investment grade rating at the time of purchase by at least one recognized bond rating service. In cases where the instrument has a split rating, the lower of the two ratings shall prevail. All instruments shall have a maturity at the time of purchase that does not exceed 397 days. Repurchase agreements shall be deemed to have a maturity equal to the period remaining until the date on which the repurchase of the underlying securities is scheduled to occur. Variable rate securities shall be deemed to have a maturity equal to the time left until the next interest rate reset occurs, but in no case will any security have a stated final maturity of more than three years.

The Systems' fixed income managers that utilize cash equivalent securities as an integral part of their investment strategy are exempt from the permissible investments contained in the preceding paragraph. Permissible short-term investments for fixed income managers shall be included in the investment manager's investment guidelines.

### C. Diversifying Strategies

#### Real Estate

Investments may be made in equity and debt real estate for the purpose of achieving the highest total rate of return possible consistent with a prudent level of risk. Allowable real estate investments include open-end and closed-end commingled real estate funds, joint venture investments, public and private real estate investment trusts ("REITs"), public real estate operating companies, and real estate related debt.

The Systems has determined that the primary role of the real estate asset class is to provide for the following:

- Attractive risk adjusted returns through active management and ability to access managers with the expertise and capabilities to exploit market inefficiencies in the asset class. The illiquid nature of real estate investments combined with the complexity of investments makes it difficult for casual investors to effectively access the asset class effectively. It is our belief that through active management and by investing in top tier managers with interests aligned through co-investment and incentive based compensation, the Systems can maximize their risk adjusted returns. This active management approach will be pursued.
- Diversification benefits through low correlations with other asset classes, primarily the U.S. equity markets.

- Provide a hedge against unanticipated inflation, which real estate has historically provided due to lease structures and the increases in material and labor costs during inflationary periods.
- Permit the Systems to invest in unique opportunities that arise due to dislocations in markets that occur from time to time.

## Real Return

The purpose of the Real Return Portfolio is to identify strategies that provide both favorable stand-alone risk-adjusted returns as well as the benefit of hedging inflation for the broader plans. Real Return strategies are not necessarily a separate asset class but may include real assets, such as infrastructure, real estate, commodities, and natural resources among others, as well as financial assets that have a positive correlation to inflation. This can include “real” bonds such as Treasury Inflation-Protected Securities (“TIPs”) (and other inflation linkers) or “real” stocks such as REITs, Master Limited Partnerships (“MLPs”), and oil & gas stocks. Additionally, Real Return managers may attempt to add value by tactically allocating to various asset classes according to how each asset class performs across an economic cycle and the manager’s perception of where we are in the cycle. The goal is to invest in inflation sensitive assets during inflationary periods, and avoid those assets in deflationary periods, thus providing a positive real return across the cycle.

The real return opportunity set may include numerous vehicles to access a wide variety of investment styles and strategies. These investment vehicles may include mutual funds, ETFs, separately managed accounts as well as hedge funds (open-end limited partnerships) and private equity (close-end limited partnerships). The list of strategies that the Systems’ Real Return Portfolio may include, but is not limited to, the following:

- Global Tactical Asset Allocation (“GTAA”)/Global Macro: GTAA or macro strategies are those that make directional bets on major markets or asset classes instead of individual securities. GTAA and macro strategies typically invest in all major assets classes including equity markets, credit and debt instruments, currencies/interest rates, and commodities. These strategies tend to focus on economic factors that would suggest an opportune time to invest in a given asset class, and will change their allocations actively over time. These strategies may use inflation as the economic factor to gain exposure to and will target a real rate of return over time.
- Inflation Linked Securities are securities that directly tie coupon payments or principal increases to an inflation index, such as Consumer Price Index (“CPI”). These strategies could include not only US TIPS, but also global sovereign inflation linked bonds, corporate or infrastructure inflation linked bonds, and possibly short duration floating rate bonds.
- Inflation Sensitive Equities include publicly traded equity and equity related securities in companies which have a high sensitivity to inflation in their profit margins via the nature of their operating assets, such as energy companies, basic materials and miners, natural resource stocks, and listed infrastructure. This category can also include REITs, MLPs as well as ETFs and index products on REITS, MLPs, natural resource stocks.
- Commodities: Commodities are the raw materials that are physical inputs into the production process. Managers that invest in liquid commodity strategies using exchange

traded futures can span from simple indexing (matching a long-only commodities index), to enhanced indexing or active long (selecting positions that vary from the index but within fairly tight ranges), as well as unconstrained long-short managers.

- **Private Property:** For the purposes of this IPS, private property refers to the ownership of an idiosyncratic, physical asset that is predominately fixed and/or permanent or at least substantially long-lived. This includes real estate, such as land and any improvements to or on the land, as well as timberland and farmland. Timberland investing involves the institutional ownership of forest for the purpose of growing and harvesting the timber. Private property can also include infrastructure investing, which refers to financing the manufacture or development of the underlying fundamental assets and basic systems that are necessary for an economy whereby such assets are largely fixed and long-lived. These tend to be high cost, capital-intensive investments that are vital to a society's prosperity and facilitate the transfer, distribution, or production of basic goods and services.
- **Natural Resources:** Natural resources can include investing in the financing, development, extraction, and production of minerals, basic materials, petroleum products, and water as well as renewable resources such as agricultural commodities and solar energy. As opposed to property, the returns generated in these investment strategies come more from the actual production of the resource itself. Further, these are depleting and/or consumable assets that are also portable and fungible and which in the aggregate comprise a majority of the inputs into most measurements of inflation.
- **Private Assets:** Private assets can include tangible or intangible assets that are not easily sold in the regular course of a business' operations for cash, and which are held for their role in contributing directly to the business' ability to generate profit. As the useful life of the asset tends to extend across many years and the assets tend to be capital intensive as well, they have some similarity to private infrastructure. Further, given that the assets contribute directly to the production process as well as often retaining intrinsic value, there is a fundamental link to inflation somewhat similar to natural resources.
- **Other (Opportunistic Inflation Hedge):** Other/opportunistic strategies include those that have a propensity to provide a positive real return or positive correlation with inflation over time. Liquid strategies such as inflation swaps, diversified inflation hedging mutual funds, or nominal bonds backed by inflation sensitive assets may be included in this allocation, while other illiquid strategies that may provide the same real profile can include private equity in inflation sensitive companies, hard asset-backed private credit, and structured inflation-linked products among others.

### **Portfolio Guidelines**

No more than 50% of the total net assets of the Real Return portfolio may be invested in any one registered investment vehicle, mutual fund, or separately managed account.

No more than 20% of the total net assets of the Real Return portfolio may be invested in any single closed-end or open-end limited partnership or other unregistered investment vehicle.

The relative allocations to the liquid and illiquid portfolios will be determined according to each individual System's liquidity needs, funding status, and allocation targets on an investment by

investment basis.

#### Opportunistic

Opportunistic investments are intended to capitalize on opportunities outside of the asset classes targeted in the asset allocation guidelines. These allocations are intended to take advantage of market dislocations and unique opportunities and can be short-to-medium-term in nature. Opportunistic investments may be implemented through targeted portfolios or multi-asset approaches. Initial allocations are to be made following the same policies and procedures as all other investments as outlined previously in this IPS.

#### D. Co-Investment Policy

The CIO has discretion to make direct co-investments in companies alongside of current general partners. Any co-investment opportunity must also be part of the main account or fund into which the Systems has already invested before it can be considered. For purposes of this IPS, a direct co-investment is defined as a direct investment in a portfolio company alongside an existing Systems' partnership deemed in good standing.

The maximum investment in any co-investment vehicle shall not exceed 50 percent of the total capital committed by all partners at the time of the final closing. The maximum investment in any single direct co-investment shall not exceed 20 percent of the original partnership commitment. Total investment in direct co-investments shall not exceed 20 percent of the asset class portfolio on a cost basis at the time of investment.

### IV. Monitoring

#### Performance Measurement

The Systems overall fund performance is measured relative to the Systems' Pension or Insurance Total Fund Benchmark. The benchmark is calculated by means of a weighted average methodology. This method is consistent with the CFA Institute Global Investment Performance Standards (GIPS®), a set of standardized, industry-wide ethical principles that guide investment managers and asset owners on how to fairly calculate and present their investment results, with the goal of promoting performance transparency and comparability. It is the product of the various component weights (i.e., asset classes' percentages) by their respective performance (returns). Due to market fluctuations and acceptable divergence, the asset classes' weights (percentages) are often not equivalent to the benchmark's weights. Therefore, the performance may indicate that the Funds have outperformed (underperformed) relative to their respective benchmarks, even when the preponderance of lesser weighted categories have underperformed (outperformed) their indices.

The Systems measures its asset classes, sub-asset classes, sectors, strategies, portfolios, and instruments (investment) performance with indexes that are recognized and published (e.g., S&P 500 & Barclays Aggregate Bond Index). These indexes are determined to be appropriate measures of investments and composites of investments with identical or similar investments profiles, characteristics, and strategies. The benchmarks and indexes are intended to be objective, investable, replicable, representative and measurable of the investment mandate and, developed from publicly available information that is acceptable to the Systems and the investment manager/advisor as the neutral position consistent with the underlying investor status.

The Systems' investment consultant and Staff recommend the benchmarks and indexes. These measures shall be subject to the review and approval of the Investment Committee with ratification by the Board when asset allocation studies are performed, or when a change to existing benchmarks is recommended by Staff and the investment consultant. The current asset class benchmarks, effective as of July 1, 2018 with the adoption of the asset allocation, are as follows:

Asset Class	Benchmark
<b>Growth</b>	
US Equity	Russell 3000
Non US Equity	MSCI ACWI ex US IMI
Private Equity	Russell 3000 + 300 bps (lagged)
High Yield / Specialty Credit	50% Bloomberg Barclays US High Yield 50% S&P LSTA Leveraged Loan
<b>Liquidity</b>	
Core Fixed Income	Bloomberg Barclays US Aggregate
Cash	Citi Grp 3-mos Treasury Bill
<b>Diversifying</b>	
Real Estate	NCREIF ODCE
Opportunistic	Highest Assumed Discount Rate of Participating Plans
Real Return	US CPI + 3%

The following descriptions represent general standards of measurement that will be used as guidelines for the various classes of investments and managers of the Systems. They are to be computed and expressed on a time-weighted total return basis:

*Total Public Asset Class Allocations*

Short-term

- For periods less than five years or a full market cycle, the Asset Class Allocation should exceed the returns of the appropriate Index.

Intermediate & Long-term

- For periods greater than five years or a full market cycle, the Asset Class Allocation should exceed the appropriate Index, compare favorably on a risk-adjusted basis, and generate returns that rank above the median return of a relevant peer group. Volatility, as measured by the standard deviation of monthly returns, should be comparable to the Index.

*Individual Public Security Portfolios*: Individual portfolios shall be assigned a market goal or benchmark that is representative of the style or market capitalization of the assignment. Individual accounts should be monitored using the following Standards:

Short-term

- For periods less than five years or a full market cycle, individual portfolios should exceed the returns of their market goal or benchmark.

Intermediate & Long-term

- For periods greater than five years or a full market cycle, individual portfolios should exceed the return of their market goal or benchmark, compare favorably on a risk-adjusted basis, and generate returns that rank above the median return of a relevant peer group. Volatility, as measured by the standard deviation of monthly returns, should be comparable to the benchmark.

## Alternative Assets:

### Private Equity

The Private Equity portfolio should also seek to achieve the following:

#### Short-term

- Alternative investments should earn a Net Internal Rate of Return (“IRR”) that place the investment above the median Net IRR of other similar funds, of the same vintage year.

#### Intermediate & Long-term

- The private equity portfolio should earn a return that meets or exceeds the Systems Private Equity Index. Individual private equity investments should earn a Net IRR above the median Net IRR of other similar funds, of the same vintage year.

### Real Estate

Private Real Estate investments are unique and can be illiquid and long term in nature. Given that this may lead to large short-term performance discrepancies versus public benchmarks, the Systems more appropriately measures its real estate investments based on both relative return and absolute return methodologies:

**Relative Return:** The Real Estate portfolio is expected to generate returns, net of all fees and expenses, in excess of the National Council of Real Estate Investment Fiduciaries Open End Diversified Core Equity Index (“NCREIF ODCE”) lagged 1 calendar quarter.

**Absolute Return:** The long-term real return objective (returns adjusted for inflation) for the Systems’ Real Estate portfolio is five percent (5%) over the Barclays Capital U.S. 7-10 Year Treasury Bond Index, net of investment management fees. This return shall be calculated on a time-weighted basis using industry standard reporting methodologies.

### Real Return

The total Real Return allocation shall seek to:

- (1) Short-term benchmark: For periods less than five (5) years or a full market cycle, the allocation should achieve an annual rate of return that exceeds the appropriate benchmark (the weighted average return of the underlying investment benchmarks) annually over a complete market cycle, net of all investment management fees.
- (2) Strategic objective: For periods greater than five (5) years or a full market cycle, the allocation should not only outperform the short-term benchmark, but also achieve a rate of return that exceeds (CPI + 300 basis points) as well.
- (3) Achieve a positive risk/reward trade-off when compared to similar style Real Return Investment Managers.

### Opportunistic

The total Opportunistic allocation shall seek to:

- (1) Short-term benchmark: For periods less than five (5) years or a full market cycle, the allocation should achieve an annual rate of return that exceeds the

highest assumed rate of return of the participating plans.

(2) Strategic benchmark: For periods greater than five (5) years or a full market cycle, the allocation should achieve an annual rate of return that exceeds the highest assumed rate of return of the participating plans.

## Performance Review

Not less than quarterly the Investment Committee will review the performance of the portfolio for determination of compliance with this IPS. On an annual basis, a comprehensive review of each asset class and underlying portfolios shall be conducted by the Staff and presented to the Investment Committee. The review shall consist of an organizational, performance and compliance assessment.

The Compliance Officer shall perform tests at least monthly to assure compliance with the restrictions imposed by this IPS. These tests shall be performed at the asset class and total fund level. Quarterly, the Compliance Officer shall prepare a report to the Investment Committee detailing the restrictions tested, exceptions, the cause of the exception and the subsequent resolution. The Investment Committee shall report the findings to the Board at the next regularly scheduled meeting.

The following restrictions shall be tested at least monthly:

- ▶ The amount of stock in the domestic or international equity allocation in any single corporation shall not exceed 5% of the aggregate market value of the Systems' assets.
- ▶ The amount of stock held in the domestic or international equity allocation shall not exceed 3% of the outstanding shares of any single corporation.
- ▶ Investment in "frontier" markets (those countries not included in the MSCI EM Index) shall not exceed 5% of the Systems' international equity assets.
- ▶ The duration of the core fixed income portfolios combined shall not vary from that of the Systems' Fixed Income Index by more than +/- 25% duration as measured by effective duration, modified duration, or dollar duration except when the Investment Committee has determined a target duration to be used for an interim basis.
- ▶ The amount invested in the debt of a single issuer shall not exceed 5% of the total market value of the Systems' fixed income assets, with the exception of U.S. Government issued, guaranteed or agency obligations (or securities collateralized by same), and derivative securities used for exposure, cost efficiency, or risk management purposes in compliance with Section VII of this policy.
- ▶ 50% of the core fixed income assets must have stated liquidity that is trade date plus three days or better.

The CIO shall develop a comprehensive set of investment guidelines for each externally managed account. These guidelines should ensure, at the total fund and asset class level, that the restrictions set forth above are preserved.



## V Additional Items

### **Derivatives Permitted Use:**

The Systems permits external managers and Staff to invest in derivative securities, or strategies which make use of derivative investments, for exposure, cost efficiency and risk management purposes, if such investments do not cause the portfolio to be leveraged beyond a 100% invested position. Any derivative security shall be sufficiently liquid that it can be expected to be sold at, or near, its most recently quoted market price. Typical uses of derivatives in the portfolio are broadly defined below:

### **Exposure:**

Derivatives are an effective way for a portfolio manager to gain exposure to a security that the manager does not want to purchase in the cash market. Reasons for gaining exposure to a security through the use of derivatives may include cheaper transactions costs, liquidity/lack of supply in the underlying market, and the flexibility to implement investment views with minimum portfolio disruption. An example is a cash equitization program.

### **Cost Efficiency:**

Derivatives are often used due to the cost efficiency associated with the contract properties. Given the fact that derivatives can be used as a form of insurance, upfront trading costs must be sufficiently low for investors to purchase the contract and insure their portfolios efficiently. Furthermore, due to properties associated with derivatives and cash outlay characteristics (minimal cash outlay at inception of the contract) derivatives are generally a vehicle of gaining cost efficient exposure. An example is the cost (zero) to purchase a futures contract.

### **Risk Management:**

Derivatives can be used for mitigating risk in the portfolio. When used as a risk management tool, derivatives can significantly reduce an identified financial risk or involuntary risk from investment areas by providing changes in fair values or cash flows that substantially offset the changes in fair values or cash flows of the associated item being hedged. An example is the use of currency forwards to offset periods of dollar strength when international equity markets increase in value, thereby protecting foreign asset gains in the portfolio.

### **Derivatives Restricted Use:**

#### **Settlement:**

Investments in futures contracts are to be cash settled unless physically settled and stored by external managers. At no time shall the Systems agree to take physical delivery on a futures contract.

#### **Position Limits:**

Futures and options positions entered into by the Systems, or on its behalf, will comply with all position and aggregate limits established by the local governing authorities within each jurisdiction.

**Over-the-Counter (OTC):**

Investments in securities not traded on public exchanges that are deemed over-the-counter (OTC) in nature are allowed provided that a counterparty risk monitoring component is delineated in the manager's guideline section of the manager's contract. All counterparties must have a short-term credit rating of at least BBB (Standard and Poor's or Fitch) or Baa2 (Moody's).

All OTC derivative transactions, including those managed through Agency Agreements, must be subject to established International Swaps and Derivatives Association, Inc. (ISDA) Master Agreements and have full documentation of all legal obligations of the Systems under the transactions. All ISDA Master Agreements entered into by or on behalf of the Systems by the Staff and external manager pursuant to an Agency Agreement shall provide that Netting applies. (Netting allows the parties to an ISDA Master Agreement to aggregate the amounts owed by each of them under all of the transactions outstanding under that ISDA Master Agreement and replace them with a single net amount payable by one party to the other.) The Staff and external managers may also use collateral arrangements to mitigate counterparty credit or performance risk. If an external manager utilizes a collateral arrangement to mitigate counterparty credit or performance risk the arrangement shall be delineated in the manager's guideline section of the manager's contract.

**Derivatives Applications Not Permitted:****Speculation:**

Except for investments in Alternative, Opportunistic Diversifying Strategies investments, and Real Return investments, derivatives may not be used for any activity for which the primary purpose is speculation or to profit while materially increasing risk to the Systems. Derivatives are considered speculative if their uses have no material relation to objectives and strategies specified by the IPS or applicable to the portfolio. Derivatives may not be used for circumventing any limitations or restrictions imposed by the IPS or applicable regulatory requirements.

**Leverage:**

Leverage is inherent in derivative contracts since only a small cash deposit is required to establish a much larger economic impact position. Thus, relative to the cash markets, where in most cases the cash outlay is equal to the asset acquired, derivative investments offer the possibility of establishing substantially larger market risk exposures with the same amount of cash as a traditional cash market portfolio. Therefore, risk management and control processes must focus on the total risk, i.e. the net notional value, assumed in a derivative investment.

*The above is not intended to limit the Systems from borrowing to cover short-term cash flow needs nor prohibit the Systems from loaning securities in accordance with a securities lending agreement.*

The Board recognizes that the voting of proxies is an important responsibility in assuring the overall performance of the Systems over a long time horizon. The Board has delegated the responsibility of voting all proxies to an outside Proxy Voting service provider or contracted external investment manager. The Board expects that the proxy voting service will execute all proxies in a timely fashion, and in accordance with the voting policy which has been formally

adopted.

The Board has adopted the ISS U.S. Proxy Voting Guidelines as the Systems' approved Proxy Voting Policy for all internally voted items. This policy is updated at least annually by ISS is and hereby incorporated by this reference.

- A. Investment Procurement Policy, as amended, is hereby incorporated by reference.
- B. KPPA Investment Brokerage Policy, as amended, is hereby incorporated by reference.
- C. KPPA Transactions Procedures Policy, as amended, is hereby incorporated by reference.
- D. KPPA Securities Litigation Policy and Procedures, as amended, is hereby incorporated by reference.
- E. KPPA Investment Securities Lending Guidelines, as amended, is hereby incorporated by reference.
- F. KPPA Securities Trading Policy for Trustees and Employees, as amended, is hereby incorporated by reference.
- G. KPPA Manager and Placement Agent Statement of Disclosure Policy, as amended, is hereby incorporated by reference.
- H. KPPA Real Estate Policy as amended and hereby incorporated by reference.
- I. KPPA Proxy Voting Policy as amended and hereby incorporated by reference.

Signatories

As Adopted by the Investment Committee

As Adopted by the Board of Trustees

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

C. Prewitt Lane

Keith Percy

Chair, Investment Committee

Chair, Board of Trustees



Kentucky Public Pensions Authority, Office of Investments  
Pension Fiscal Year 2022  
Investment Review for the Quarter Ended September 30, 2021 Presented to the Kentucky  
Retirement Systems Investment Committee

KRS Investment Committee Meeting - Performance Report



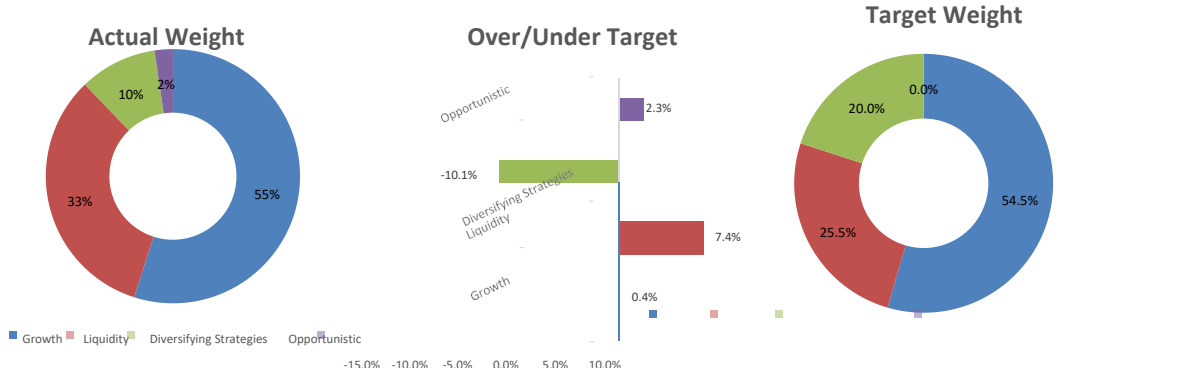
**Total KERS**  
Risk Categorization Summary As of September 30, 2021

	Market Value (\$USD)	% of Portfolio	MTD	QTD	YTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year	Inception	IRR 1 YR
<b>Total Portfolio</b>	\$ 3,125,446,340	100.0%	-0.8%	0.9%	9.7%	18.1%	9.4%	9.2%	8.6%	7.0%	8.2%	9.1%	17.8%
KERS Pension IPS Policy Index			-0.5%	0.8%	8.0%	16.7%	8.5%	8.5%	8.4%	7.0%	8.0%	9.1%	16.8%
<b>Growth</b>	\$ 1,716,874,533	54.9%	-1.4%	1.1%	13.3%	26.7%							
Growth Custom Benchmark			-1.9%	0.8%	12.8%	27.3%	13.0%					13.1%	
<b>Liquidity</b>	\$ 1,028,262,199	32.9%	-0.1%	0.1%	0.7%	2.0%							
Liquidity Custom Benchmark			-0.8%	0.0%	-1.5%	-0.8%	5.1%					4.7%	
<b>Diversifying Strategies</b>	\$ 308,025,401	9.9%	1.1%	2.8%	12.4%	19.4%							
Diversifying Strategies Custom			1.1%	2.5%	7.0%	8.7%	5.6%					5.5%	
<b>Opportunistic</b>	\$ 72,440,825	2.3%	1.1%	2.9%	8.7%								



**Total KERS**  
**Asset Allocation vs Targets**  
**As of September 30, 2021**

**Actual vs Target Weights**



Risk Categorization	Ending Market Value (\$USD)	Actual Weight	Target Weight	Relative
Growth	\$1,716,874,533	54.9%	54.5%	0.4%
Liquidity	\$1,028,262,199	32.9%	25.5%	7.4%
Diversifying Strategies	\$308,025,401	9.9%	20.0%	-10.1%
Opportunistic	\$72,440,825	2.3%	0.0%	2.3%

Asset Allocation	Actual	Target	Target Difference	IPS Min	IPS Max
US Equity	16.71%	16.25%	0.46%	11.38%	21.13%
Non-US Equity	15.90%	16.25%	-0.35%	11.38%	21.13%
Private Equity	6.77%	7.00%	-0.23%	4.90%	9.10%
High Yield/Specialty Credit	15.76%	15.00%	0.76%	10.50%	19.50%
Core Fixed Income	22.59%	20.50%	2.09%	16.40%	24.60%
Cash	9.42%	5.00%	4.42%	0.00%	10.00%
Real Return	5.82%	10.00%	-4.18%	7.00%	13.00%
Real Estate	4.74%	10.00%	-5.26%	7.00%	13.00%
Opportunistic	2.20%	0.00%	2.20%	0.00%	5.00%

KRS Investment Committee Meeting - Performance Report



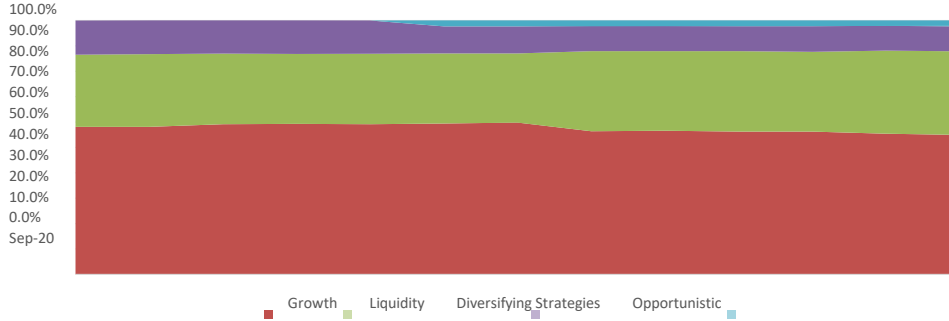
Total KERS  
Risk Categorization Performance As of September 30, 2021

	Market Value (\$USD)	% of Portfolio	MTD	QTD	YTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year	Inception	IRR 1 YR
<b>Total Portfolio</b>	\$ 3,125,446,340	100.0%	-0.8%	0.9%	9.7%	18.1%	9.4%	9.2%	8.6%	7.0%	8.2%	9.1%	17.8%
<i>KERS Pension IPS Policy Index</i>			-0.5%	0.8%	8.0%	16.7%	8.5%	8.5%	8.4%	7.0%	8.0%	9.1%	16.8%
<b>Growth</b>	\$ 1,716,874,533	54.9%	-1.4%	1.1%	13.3%	26.7%							
<i>Growth Custom Benchmark</i>			-1.9%	0.8%	12.8%	27.3%	13.0%						13.1%
<b>Public Equity</b>	\$ 983,757,634	31.5%	-4.1%	-1.0%	11.6%	29.7%							
<i>Global Equity Blended Index</i>			-3.8%	-1.3%	10.9%	28.6%	12.2%	13.1%	11.9%	7.9%	9.2%		10.6%
<b>U.S. Equity</b>	\$ 504,803,399	16.2%	-4.4%	-0.2%	15.5%	33.1%							
<i>KY Domestic Equity Blend</i>			-4.5%	-0.1%	15.0%	31.9%	16.0%	16.8%	16.6%	10.0%	10.8%		11.9%
<b>Non U.S. Equity</b>	\$ 478,954,235	15.3%	-3.9%	-1.8%	7.6%	26.2%							
<i>KY Ret. Int'l Eq. Blended Index</i>			-3.2%	-2.6%	6.8%	25.2%	8.3%	9.2%	7.9%	6.9%	6.9%		8.2%
<b>Private Equity</b>	\$ 208,144,267	6.7%	9.6%	11.2%	37.6%	47.1%							
<i>Pension Private Equity Custom Benchmark</i>			2.7%	4.2%	28.9%	37.8%	16.2%	15.9%	15.4%				11.6%
<b>High Yield/Specialty Credit</b>	\$ 524,972,632	16.8%	0.8%	2.0%	8.0%	12.7%							
<i>High Yield Custom Benchmark</i>			0.3%	1.0%	4.5%	9.8%	5.5%						5.2%
<b>Liquidity</b>	\$ 1,028,262,199	32.9%	-0.1%	0.1%	0.7%	2.0%							
<i>Liquidity Custom Benchmark</i>			-0.8%	0.0%	-1.5%	-0.8%	5.1%						4.7%
<b>Core Fixed Income</b>	\$ 694,251,525	22.2%	-0.1%	0.1%	0.8%	2.2%							
<i>Bloomberg Barclays U.S. Aggregate Bond Index</i>			-0.9%	0.0%	-1.6%	-0.9%	5.4%	2.9%	3.0%				4.0%
<b>Cash</b>	\$ 334,010,674	10.7%	0.0%	0.0%	0.1%	0.1%							
<i>FTSE Treasury Bill-3 Month</i>			0.0%	0.0%	0.0%	0.1%	1.1%	1.1%	0.6%	1.3%	2.4%		2.9%
<b>Diversifying Strategies</b>	\$ 308,025,401	9.9%	1.1%	2.8%	12.4%	19.4%							
<i>Diversifying Strategies Custom</i>			1.1%	2.5%	7.0%	8.7%	5.6%						5.5%
<b>Real Return</b>	\$ 185,730,171	5.9%	-0.3%	0.4%	11.4%	21.7%							
<i>Pension Real Return Custom Bmk</i>			0.3%	0.9%	12.0%	22.3%	5.8%	4.1%	3.5%				3.5%
<b>Real Estate</b>	\$ 122,295,230	3.9%	3.2%	6.7%	13.7%	17.8%							
<i>NCREIF NPI ODCE Net 1Qtr in Arrears Index</i>			3.7%	3.7%	6.8%	7.1%	4.6%	5.6%	8.6%	6.6%	6.6%		6.3%
<b>Opportunistic</b>	\$ 72,440,825	2.3%	1.1%	2.9%	8.7%								



**Total KERS**  
**Asset Allocation Over Time**  
**As of September 30, 2021**

**Asset Allocation Over time**



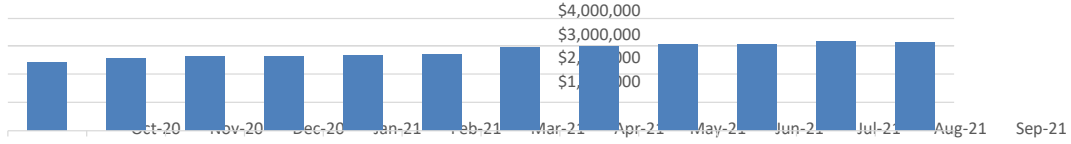
Risk Categorization	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021
Growth	56.40%	56.58%	56.21%	56.23%	55.41%	54.93%
Liquidity	31.51%	31.32%	31.72%	31.42%	32.73%	32.90%
Diversifying Strategies	9.94%	9.89%	9.86%	10.12%	9.74%	9.86%
Opportunistic	2.16%	2.20%	2.22%	2.24%	2.13%	2.32%



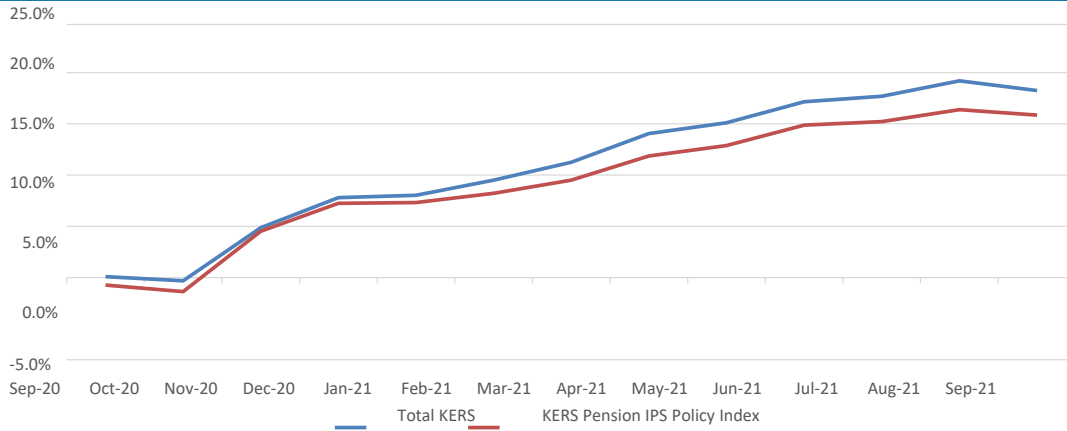


**Total KERS**  
**Summary**  
**As of September 30, 2021**

Market Value Over Time (\$USD 000)



Cumulative Performance Over 1 Year





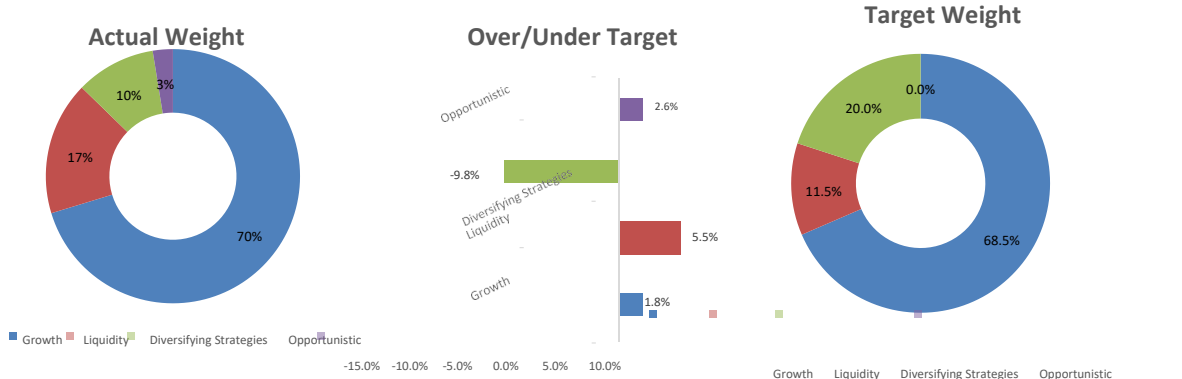
**Total KERS - H**  
Risk Categorization Summary As of September 30, 2021

	Market Value (\$USD)	% of Portfolio	MTD	QTD	YTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year	Inception	IRR 1 YR
<b>Total Portfolio</b>	\$ 879,118,761	100.0%	-1.0%	1.1%	1.1%	20.7%	9.7%	9.9%	8.9%	7.2%	8.3%	9.2%	20.7%
KERS-H Pension IPS Policy Index			-0.4%	1.1%	1.1%	21.0%	9.6%	9.6%	8.9%	7.2%	8.2%	9.2%	21.0%
<b>Growth</b>	\$ 618,034,947	70.3%	-1.4%	1.1%	13.3%	26.7%							
Growth Custom Benchmark			-1.9%	0.8%	12.8%	27.3%	13.0%						13.1%
<b>Liquidity</b>	\$ 149,260,877	17.0%	-0.1%	0.1%	0.7%	2.0%							
Liquidity Custom Benchmark			-0.8%	0.0%	-1.5%	-0.8%	5.1%						4.7%
<b>Diversifying Strategies</b>	\$ 89,408,344	10.2%	1.1%	2.8%	12.4%	19.4%							
Diversifying Strategies Custom			1.1%	2.5%	7.0%	8.7%	5.6%						5.5%
<b>Opportunistic</b>	\$ 22,458,759	2.6%	1.1%	2.9%	8.7%								



**Total KERS - H**  
**Asset Allocation vs Targets**  
**As of September 30, 2021**

**Actual vs Target Weights**



Risk Categorization	Ending Market Value (\$USD)	Actual Weight	Target Weight	Relative
Growth	\$618,034,947	70.3%	68.5%	1.8%
Liquidity	\$149,260,877	17.0%	11.5%	5.5%
Diversifying Strategies	\$89,408,344	10.2%	20.0%	-9.8%
Opportunistic	\$22,458,759	2.6%	0.0%	2.6%

Asset Allocation	Actual	Target	Target Difference	IPS Min	IPS Max
US Equity	23.57%	21.75%	1.82%	15.23%	28.28%
Non-US Equity	22.64%	21.75%	0.89%	15.23%	28.28%
Private Equity	7.61%	10.00%	-2.39%	7.00%	13.00%
High Yield/Specialty Credit	16.23%	15.00%	1.23%	10.50%	19.50%
Core Fixed Income	13.21%	10.00%	3.21%	8.00%	12.00%
Cash	3.60%	1.50%	2.10%	0.00%	3.00%
Real Return	5.88%	10.00%	-4.12%	7.00%	13.00%
Real Estate	4.64%	10.00%	-5.36%	7.00%	13.00%
Opportunistic	2.40%	0.00%	2.40%	0.00%	5.00%

KRS Investment Committee Meeting - Performance Report



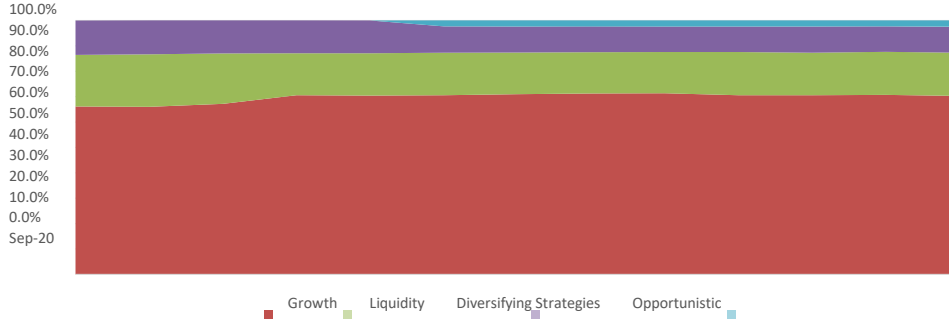
Total KERS - H  
Risk Categorization Performance As of September 30, 2021

	Market Value (\$USD)	% of Portfolio	MTD	QTD	YTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year	Inception	IRR 1 YR
<b>Total Portfolio</b>	\$ 879,118,761	100.0%	-1.0%	1.1%	1.1%	20.7%	9.7%	9.9%	8.9%	7.2%	8.3%	9.2%	20.7%
KERS-H Pension IPS Policy Index			-0.4%	1.1%	1.1%	21.0%	9.6%	9.6%	8.9%	7.2%	8.2%	9.2%	21.0%
<b>Growth</b>	\$ 618,034,947	70.3%	-1.4%	1.1%	13.3%	26.7%							
Growth Custom Benchmark			-1.9%	0.8%	12.8%	27.3%	13.0%						13.1%
<b>Public Equity</b>	\$ 396,166,998	45.1%	-4.1%	-1.0%	11.6%	29.7%							
Global Equity Blended Index			-3.8%	-1.3%	10.9%	28.6%	12.2%	13.1%	11.9%	7.9%	9.2%		10.6%
<b>U.S. Equity</b>	\$ 202,279,915	23.0%	-4.4%	-0.2%	15.5%	33.1%							
KY Domestic Equity Blend			-4.5%	-0.1%	15.0%	31.9%	16.0%	16.8%	16.6%	10.0%	10.8%		11.9%
<b>Non U.S. Equity</b>	\$ 193,887,083	22.1%	-3.9%	-1.8%	7.6%	26.2%							
KY Ret. Int'l Eq. Blended Index			-3.2%	-2.6%	6.8%	25.2%	8.3%	9.2%	7.9%	6.9%	6.9%		8.2%
<b>Private Equity</b>	\$ 69,390,972	7.9%	9.6%	11.2%	37.6%	47.1%							
Pension Private Equity Custom Benchmark			2.7%	4.2%	28.9%	37.8%	16.2%	15.9%	15.4%				11.6%
<b>High Yield/Specialty Credit</b>	\$ 152,476,976	17.3%	0.8%	2.0%	8.0%	12.7%							
High Yield Custom Benchmark			0.3%	1.0%	4.5%	9.8%	5.5%						5.2%
<b>Liquidity</b>	\$ 149,260,877	17.0%	-0.1%	0.1%	0.7%	2.0%							
Liquidity Custom Benchmark			-0.8%	0.0%	-1.5%	-0.8%	5.1%						4.7%
<b>Core Fixed Income</b>	\$ 115,420,029	13.1%	-0.1%	0.1%	0.8%	2.2%							
Bloomberg Barclays U.S. Aggregate Bond Index			-0.9%	0.0%	-1.6%	-0.9%	5.4%	2.9%	3.0%				4.0%
<b>Cash</b>	\$ 33,840,848	3.8%	0.0%	0.0%	0.1%	0.1%							
FTSE Treasury Bill-3 Month			0.0%	0.0%	0.0%	0.1%	1.1%	1.1%	0.6%	1.3%	2.4%		2.9%
<b>Diversifying Strategies</b>	\$ 89,408,344	10.2%	1.1%	2.8%	12.4%	19.4%							
Diversifying Strategies Custom			1.1%	2.5%	7.0%	8.7%	5.6%						5.5%
<b>Real Return</b>	\$ 53,655,341	6.1%	-0.3%	0.4%	11.4%	21.7%							
Pension Real Return Custom Bmk			0.3%	0.9%	12.0%	22.3%	5.8%	4.1%	3.5%				3.5%
<b>Real Estate</b>	\$ 35,753,003	4.1%	3.2%	6.7%	13.7%	17.8%							
NCREIF NFI ODCE Net 1Qtr in Arrears Index			3.7%	3.7%	6.8%	7.1%	4.6%	5.6%	8.6%	6.6%	6.6%		6.3%
<b>Opportunistic</b>	\$ 22,458,759	2.6%	1.1%	2.9%	8.7%								



**Total KERS - H**  
**Asset Allocation Over Time**  
**As of September 30, 2021**

**Asset Allocation Over time**

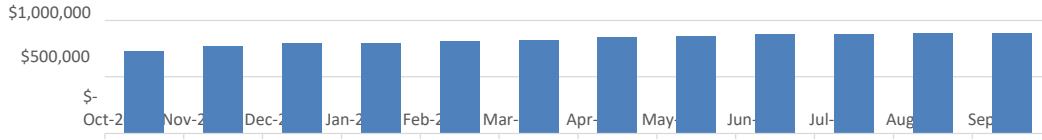


Risk Categorization	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021
Growth	71.26%	71.35%	70.57%	70.54%	70.70%	70.30%
Liquidity	16.29%	16.21%	17.02%	16.80%	16.98%	16.98%
Diversifying Strategies	10.13%	10.07%	10.01%	10.25%	9.99%	10.17%
Opportunistic	2.33%	2.37%	2.40%	2.42%	2.34%	2.55%

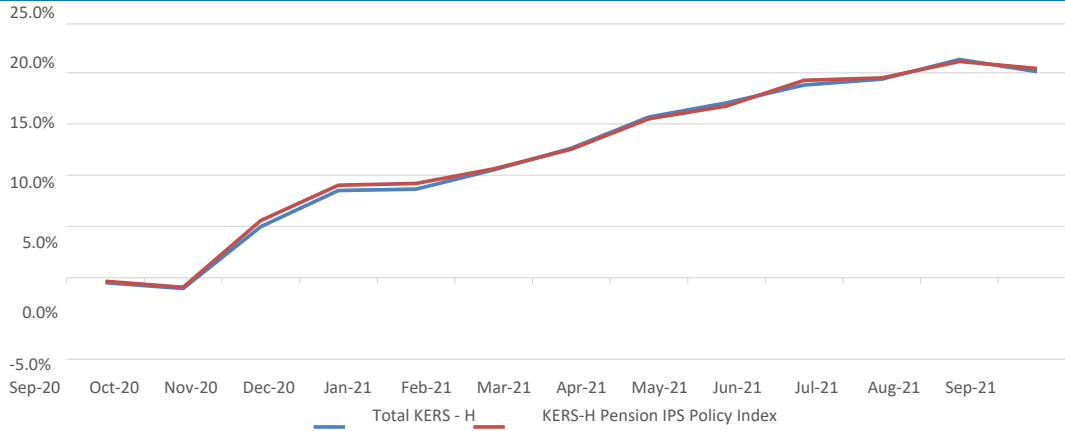


**Total KERS - H**  
**Summary**  
**As of September 30, 2021**

**Market Value Over Time (\$USD 000)**



**Cumulative Performance Over 1 Year**



KRS Investment Committee Meeting - Performance Report



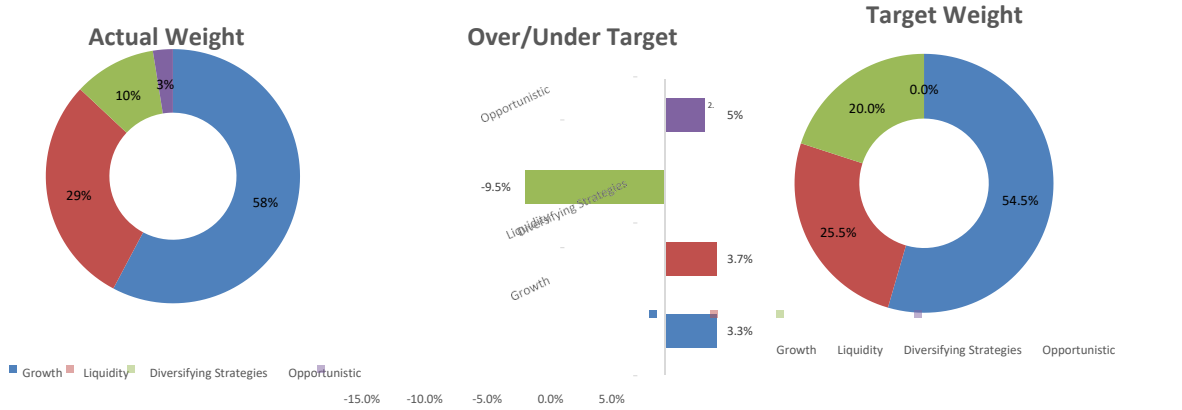
**Total SPRS**  
Risk Categorization Summary As of September 30, 2021

	Market Value (\$USD)	% of Portfolio	MTD	QTD	YTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year	Inception	IRR 1 YR
<b>Total Portfolio</b>	\$ 353,014,687	100.0%	-0.8%	1.0%	9.2%	17.6%	9.1%	9.2%	8.4%	6.9%	8.1%	9.1%	17.6%
SPRS Pension IPS Policy Index			-0.5%	0.8%	8.0%	16.7%	8.5%	8.6%	8.4%	6.9%	8.0%	9.1%	16.8%
<b>Growth</b>	\$ 203,921,102	57.8%	-1.5%	1.1%	13.3%	26.7%							
Growth Custom Benchmark			-1.9%	0.8%	12.8%	27.3%	13.0%					13.1%	
<b>Liquidity</b>	\$ 103,194,548	29.2%	-0.1%	0.1%	0.7%	2.0%							
Liquidity Custom Benchmark			-0.8%	0.0%	-1.5%	-0.8%	5.1%					4.7%	
<b>Diversifying Strategies</b>	\$ 36,968,885	10.5%	1.1%	2.8%	12.4%	19.4%							
Diversifying Strategies Custom			1.1%	2.5%	7.0%	8.7%	5.6%					5.5%	
<b>Opportunistic</b>	\$ 8,947,853	2.5%	1.1%	2.9%	8.7%								



**Total SPRS**  
**Asset Allocation vs Targets**  
**As of September 30, 2021**

**Actual vs Target Weights**



Risk Categorization	Ending Market Value (\$USD)	Actual Weight	Target Weight	Relative
Growth	\$203,921,102	57.8%	54.5%	3.3%
Liquidity	\$103,194,548	29.2%	25.5%	3.7%
Diversifying Strategies	\$36,968,885	10.5%	20.0%	-9.5%
Opportunistic	\$8,947,853	2.5%	0.0%	2.5%

Asset Allocation	Actual	Target	Target Difference	IPS Min	IPS Max
US Equity	18.42%	16.25%	2.17%	11.38%	21.13%
Non-US Equity	17.29%	16.25%	1.04%	11.38%	21.13%
Private Equity	5.71%	7.00%	-1.26%	4.90%	9.10%
High Yield/Specialty Credit	16.24%	15.00%	1.24%	10.50%	19.50%
Core Fixed Income	22.86%	20.50%	2.36%	16.40%	24.60%
Cash	6.00%	5.00%	1.00%	0.00%	10.00%
Real Return	5.97%	10.00%	-4.03%	7.00%	13.00%
Real Estate	4.96%	10.00%	-5.04%	7.00%	13.00%
Opportunistic	2.33%	0.00%	2.33%	0.00%	5.00%



KRS Investment Committee Meeting - Performance Report



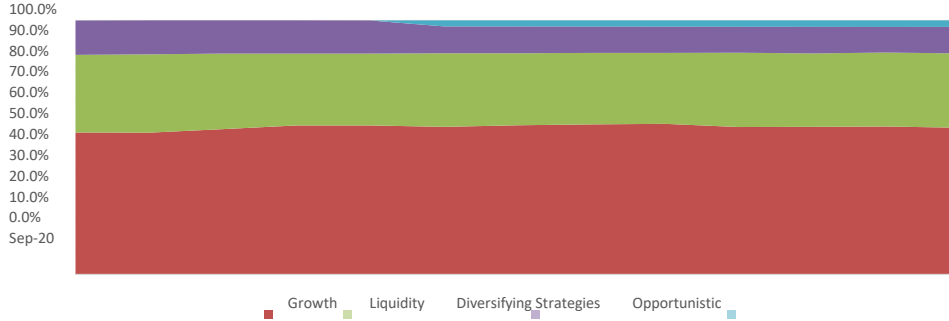
Total SPRS  
Risk Categorization Performance As of September 30, 2021

	Market Value (\$USD)	% of Portfolio	MTD	QTD	YTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year	Inception	IRR 1 YR
<b>Total Portfolio</b>	\$ 353,014,687	100.0%	-0.8%	1.0%	9.2%	17.6%	9.1%	9.2%	8.4%	6.9%	8.1%	9.1%	17.6%
SPRS Pension IPS Policy Index			-0.5%	0.8%	8.0%	16.7%	8.5%	8.6%	8.4%	6.9%	8.0%	9.1%	16.8%
<b>Growth</b>	\$ 203,921,102	57.8%	-1.5%	1.1%	13.3%	26.7%							
Growth Custom Benchmark			-1.9%	0.8%	12.8%	27.3%	13.0%						13.1%
<b>Public Equity</b>	\$ 122,565,073	34.7%	-4.1%	-1.0%	11.6%	29.7%							
Global Equity Blended Index			-3.8%	-1.3%	10.9%	28.6%	12.2%	13.1%	11.9%	7.9%	9.2%		10.6%
<b>U.S. Equity</b>	\$ 63,294,704	17.9%	-4.4%	-0.2%	15.5%	33.1%							
KY Domestic Equity Blend			-4.5%	-0.1%	15.0%	31.9%	16.0%	16.8%	16.6%	10.0%	10.8%		11.9%
<b>Non U.S. Equity</b>	\$ 59,270,369	16.8%	-3.9%	-1.8%	7.6%	26.2%							
KY Ret. Int'l Eq. Blended Index			-3.2%	-2.6%	6.8%	25.2%	8.3%	9.2%	7.9%	6.9%	6.9%		8.2%
<b>Private Equity</b>	\$ 20,293,550	5.7%	9.6%	11.2%	37.6%	47.1%							
Pension Private Equity Custom Benchmark			2.7%	4.2%	28.9%	37.8%	16.2%	15.9%	15.4%				11.6%
<b>High Yield/Specialty Credit</b>	\$ 61,062,478	17.3%	0.8%	2.0%	8.0%	12.7%							
High Yield Custom Benchmark			0.3%	1.0%	4.5%	9.8%	5.5%						5.2%
<b>Liquidity</b>	\$ 103,194,548	29.2%	-0.1%	0.1%	0.7%	2.0%							
Liquidity Custom Benchmark			-0.8%	0.0%	-1.5%	-0.8%	5.1%						4.7%
<b>Core Fixed Income</b>	\$ 79,954,035	22.6%	-0.1%	0.1%	0.8%	2.2%							
Bloomberg Barclays U.S. Aggregate Bond Index			-0.9%	0.0%	-1.6%	-0.9%	5.4%	2.9%	3.0%				4.0%
<b>Cash</b>	\$ 23,240,514	6.6%	0.0%	0.0%	0.1%	0.1%							
FTSE Treasury Bill-3 Month			0.0%	0.0%	0.0%	0.1%	1.1%	1.1%	0.6%	1.3%	2.4%		2.9%
<b>Diversifying Strategies</b>	\$ 36,968,885	10.5%	1.1%	2.8%	12.4%	19.4%							
Diversifying Strategies Custom			1.1%	2.5%	7.0%	8.7%	5.6%						5.5%
<b>Real Return</b>	\$ 21,798,950	6.2%	-0.3%	0.4%	11.4%	21.7%							
Pension Real Return Custom Bmk			0.3%	0.9%	12.0%	22.3%	5.8%	4.1%	3.5%				3.5%
<b>Real Estate</b>	\$ 15,169,935	4.3%	3.2%	6.7%	13.7%	17.8%							
NCREIF NFI ODCE Net 1Qtr in Arrears Index			3.7%	3.7%	6.8%	7.1%	4.6%	5.6%	8.6%	6.6%	6.6%		6.3%
<b>Opportunistic</b>	\$ 8,947,853	2.5%	1.1%	2.9%	8.7%								



**Total SPRS**  
**Asset Allocation Over Time**  
**As of September 30, 2021**

**Asset Allocation Over time**

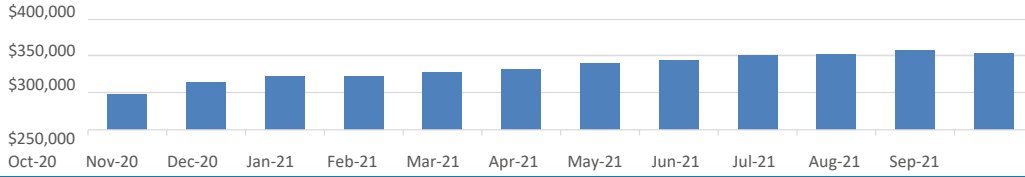


Risk Categorization	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021
Growth	59.09%	59.30%	58.06%	58.09%	58.24%	57.77%
Liquidity	28.17%	27.94%	29.28%	28.95%	29.15%	29.23%
Diversifying Strategies	10.43%	10.39%	10.28%	10.56%	10.29%	10.47%
Opportunistic	2.32%	2.37%	2.39%	2.41%	2.32%	2.53%

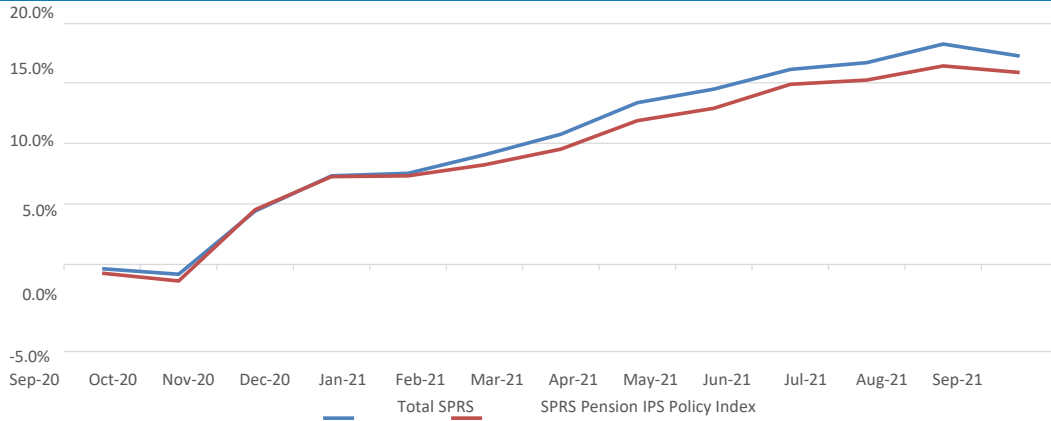


**Total SPRS**  
 Summary  
 As of September 30, 2021

**Market Value Over Time (\$USD 000)**



**Cumulative Performance Over 1 Year**



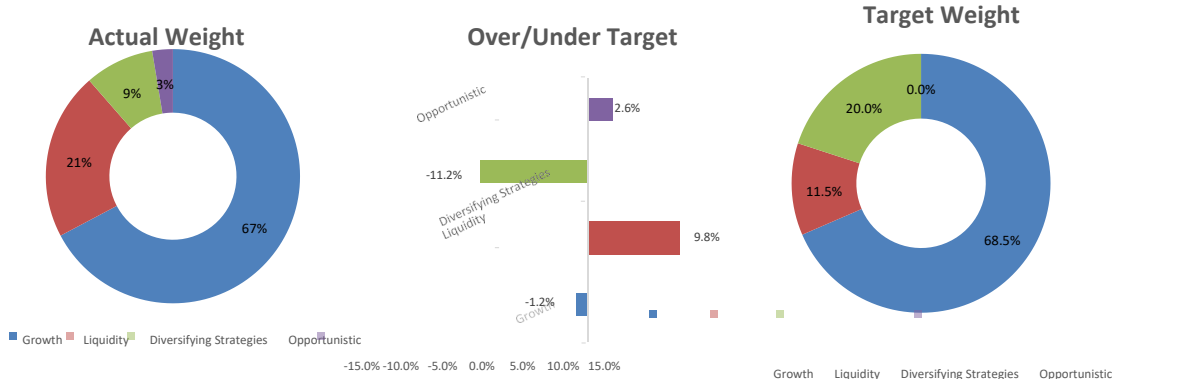


Kentucky Public Pensions Authority, Office of Investments  
Insurance Fiscal Year 2022  
Investment Review for the Quarter Ended September 30, 2021 Presented to the Kentucky  
Retirement Systems Investment Committee



**Total KERS INS**  
**Asset Allocation vs Targets**  
**As of September 30, 2021**

**Actual vs Target Weights**



Risk Categorization	Ending Market Value (\$USD)	Actual Weight	Target Weight	Relative
Growth	\$917,958,867	67.3%	68.5%	-1.2%
Liquidity	\$290,851,401	21.3%	11.5%	9.8%
Diversifying Strategies	\$120,267,770	8.8%	20.0%	-11.2%
Opportunistic	\$35,763,268	2.6%	0.0%	2.6%

Asset Allocation	Actual	Target	Target Difference	IPS Min	IPS Max
US Equity	24.81%	21.75%	3.06%	15.23%	28.28%
Non-US Equity	21.44%	21.75%	-0.31%	15.23%	28.28%
Private Equity	5.23%	10.00%	-4.77%	7.00%	13.00%
High Yield/Specialty Credit	15.65%	15.00%	0.65%	10.50%	19.50%
Core Fixed Income	12.76%	10.00%	2.76%	8.00%	12.00%
Cash	8.31%	1.50%	6.81%	0.00%	3.00%
Real Return	5.50%	10.00%	-4.40%	7.00%	13.00%
Real Estate	3.70%	10.00%	-6.30%	7.00%	13.00%
Opportunistic	2.46%	0.00%	2.46%	0.00%	5.00%

KRS Investment Committee Meeting - Performance Report



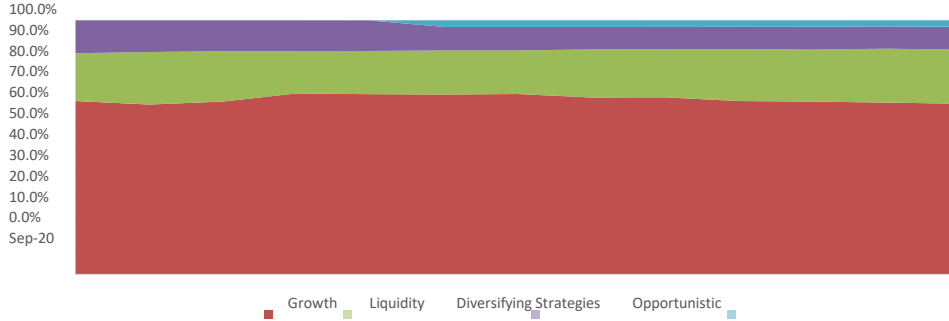
Total KERS INS  
Risk Categorization Performance As of September 30, 2021

	Market Value (\$USD)	% of Portfolio	MTD	QTD	YTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year	Inception	IRR 1 YR
<b>Total Portfolio</b>	<b>\$ 1,364,745,917</b>	<b>100.0%</b>	<b>-1.3%</b>	<b>0.7%</b>	<b>9.8%</b>	<b>19.9%</b>	<b>9.3%</b>	<b>9.5%</b>	<b>8.4%</b>	<b>6.6%</b>	<b>7.3%</b>	<b>7.6%</b>	<b>19.7%</b>
<i>KERS Insurance IPS Policy Index</i>			-1.3%	0.2%	8.9%	19.0%	9.4%	9.5%	8.8%	6.9%	7.7%	7.9%	20.3%
<b>Growth</b>	<b>\$ 917,958,867</b>	<b>67.3%</b>	<b>-1.2%</b>	<b>1.3%</b>	<b>13.1%</b>	<b>26.5%</b>							
<i>Growth Custom Benchmark</i>			-1.9%	0.8%	12.8%	27.3%	13.0%						13.1%
<b>Public Equity</b>	<b>\$ 615,772,784</b>	<b>45.1%</b>	<b>-4.1%</b>	<b>-1.0%</b>	<b>11.6%</b>	<b>29.6%</b>							
<i>Global Equity Blended Index</i>			-3.8%	-1.3%	10.9%	28.6%	12.2%	13.1%	11.9%	7.9%	9.2%		10.6%
<b>U.S. Equity</b>	<b>\$ 330,741,914</b>	<b>24.2%</b>	<b>-4.4%</b>	<b>-0.2%</b>	<b>15.5%</b>	<b>33.0%</b>							
<i>KY Domestic Equity Blend</i>			-4.5%	-0.1%	15.0%	31.9%	16.0%	16.8%	16.6%	10.0%	10.8%		11.9%
<b>Non U.S. Equity</b>	<b>\$ 285,030,870</b>	<b>20.9%</b>	<b>-3.9%</b>	<b>-1.7%</b>	<b>7.7%</b>	<b>26.2%</b>							
<i>KY Ret. Int'l Eq. Blended Index</i>			-3.2%	-2.6%	6.8%	25.2%	8.3%	9.2%	7.9%	6.9%	6.9%		8.2%
<b>Private Equity</b>	<b>\$ 75,010,938</b>	<b>5.5%</b>	<b>11.4%</b>	<b>13.0%</b>	<b>33.6%</b>	<b>45.0%</b>							
<i>Insurance Private Equity Custom Benchmark</i>			1.4%	19.9%	30.1%	11.2%	13.6%	14.3%					10.6%
<b>High Yield/Specialty Credit</b>	<b>\$ 227,175,145</b>	<b>16.6%</b>	<b>0.7%</b>	<b>1.8%</b>	<b>7.7%</b>	<b>12.3%</b>							
<i>High Yield Custom Benchmark</i>			0.3%	1.0%	4.5%	9.8%	5.5%						5.2%
<b>Liquidity</b>	<b>\$ 290,851,401</b>	<b>21.3%</b>	<b>-0.1%</b>	<b>0.2%</b>	<b>0.6%</b>	<b>1.9%</b>							
<i>Liquidity Custom Benchmark</i>			-0.8%	0.0%	-1.5%	-0.8%	5.1%						4.7%
<b>Core Fixed Income</b>	<b>\$ 173,299,005</b>	<b>12.7%</b>	<b>-0.2%</b>	<b>0.2%</b>	<b>0.8%</b>	<b>2.2%</b>							
<i>Bloomberg Barclays U.S. Aggregate Bond Index</i>			-0.9%	0.0%	-1.6%	-0.9%	5.4%	2.9%	3.0%				4.0%
<b>Cash</b>	<b>\$ 117,552,396</b>	<b>8.6%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.1%</b>	<b>0.1%</b>							
<i>FTSE Treasury Bill-3 Month</i>			0.0%	0.0%	0.0%	0.1%	1.1%	1.1%	0.6%	1.3%	2.4%		2.9%
<b>Diversifying Strategies</b>	<b>\$ 120,267,770</b>	<b>8.8%</b>	<b>1.0%</b>	<b>2.7%</b>	<b>11.5%</b>	<b>18.2%</b>							
<i>Diversifying Strategies Custom</i>			1.1%	2.5%	7.0%	8.7%	5.6%						5.5%
<b>Real Return</b>	<b>\$ 78,988,024</b>	<b>5.8%</b>	<b>-0.5%</b>	<b>0.4%</b>	<b>10.1%</b>	<b>19.7%</b>							
<i>Insurance Real Return Custom Bmk</i>			0.9%	10.7%	20.3%	6.4%	4.3%	3.6%					3.6%
<b>Real Estate</b>	<b>\$ 41,279,746</b>	<b>3.0%</b>	<b>3.4%</b>	<b>6.5%</b>	<b>13.5%</b>	<b>17.4%</b>							
<i>NCREIF NPI ODCE Net 1Qtr in Arrears Index</i>			3.7%	3.7%	6.8%	7.1%	4.6%	5.6%	8.6%	6.6%	6.6%		6.3%
<b>Opportunistic</b>	<b>\$ 35,763,268</b>	<b>2.6%</b>	<b>1.1%</b>	<b>2.9%</b>	<b>8.7%</b>								



**Total KERS INS**  
**Asset Allocation Over Time**  
**As of September 30, 2021**

**Asset Allocation Over time**

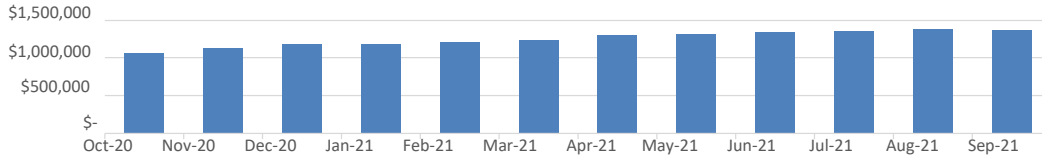


Risk Categorization	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021
Growth	69.67%	69.75%	68.25%	68.06%	67.64%	67.26%
Liquidity	18.98%	18.94%	20.47%	20.50%	21.28%	21.31%
Diversifying Strategies	8.93%	8.85%	8.79%	8.94%	8.69%	8.81%
Opportunistic	2.43%	2.47%	2.49%	2.50%	2.39%	2.62%

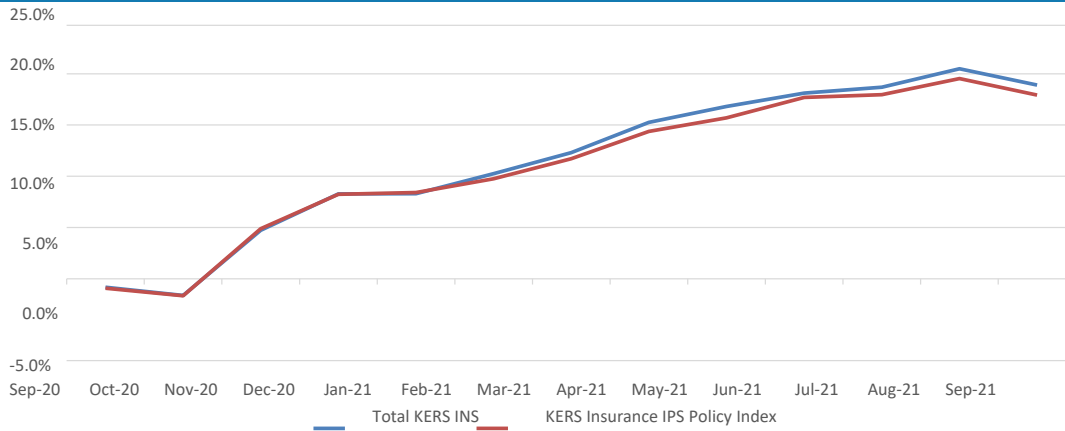


**Total KERS INS**  
 Summary  
 As of September 30, 2021

Market Value Over Time (\$USD 000)



Cumulative Performance Over 1 Year





KRS Investment Committee Meeting - Performance Report



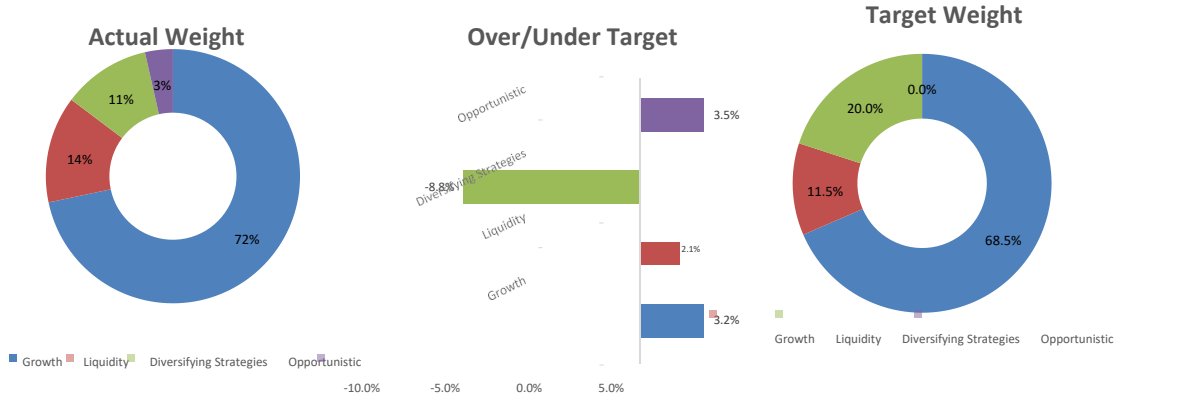
**Total KERS - H INS**  
Risk Categorization Summary As of September 30, 2021

	Market Value (\$USD)	% of Portfolio	MTD	QTD	YTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year	Inception	IRR 1 YR
<b>Total Portfolio</b>	<b>\$ 628,431,703</b>	<b>100.0%</b>	<b>-0.7%</b>	<b>1.4%</b>	<b>1.4%</b>	<b>20.9%</b>	<b>9.5%</b>	<b>9.8%</b>	<b>8.7%</b>	<b>6.7%</b>	<b>7.4%</b>	<b>7.7%</b>	<b>21.0%</b>
KERS-H Insurance IPS Policy Index			-0.3%	1.3%	1.3%	20.7%	9.2%	9.4%	8.8%	6.9%	7.7%	7.9%	20.7%
<b>Growth</b>	<b>\$ 450,553,919</b>	<b>71.7%</b>	<b>-1.2%</b>	<b>1.3%</b>	<b>13.1%</b>	<b>26.5%</b>							
Growth Custom Benchmark			-1.9%	0.8%	12.8%	27.3%	13.0%						13.1%
<b>Liquidity</b>	<b>\$ 85,352,532</b>	<b>13.6%</b>	<b>-0.1%</b>	<b>0.2%</b>	<b>0.6%</b>	<b>1.9%</b>							
Liquidity Custom Benchmark			-0.8%	0.0%	-1.5%	-0.8%	5.1%						4.7%
<b>Diversifying Strategies</b>	<b>\$ 70,336,826</b>	<b>11.2%</b>	<b>1.0%</b>	<b>2.7%</b>	<b>11.5%</b>	<b>18.2%</b>							
Diversifying Strategies Custom			1.1%	2.5%	7.0%	8.7%	5.6%						5.5%
<b>Opportunistic</b>	<b>\$ 22,232,239</b>	<b>3.5%</b>	<b>1.1%</b>	<b>2.9%</b>	<b>8.7%</b>								



**Total KERS - H INS**  
**Asset Allocation vs Targets**  
**As of September 30, 2021**

**Actual vs Target Weights**



Risk Categorization	Ending Market Value (\$USD)	Actual Weight	Target Weight	Relative
Growth	\$450,553,919	71.7%	68.5%	3.2%
Liquidity	\$85,352,532	13.6%	11.5%	2.1%
Diversifying Strategies	\$70,336,826	11.2%	20.0%	-8.8%
Opportunistic	\$22,232,239	3.5%	0.0%	3.5%

Asset Allocation	Actual	Target	Target Difference	IPS Min	IPS Max
US Equity	22.78%	21.75%	0.94%	15.23%	28.28%
Non-US Equity	22.40%	21.75%	0.57%	15.23%	28.28%
Private Equity	8.70%	10.00%	-1.91%	7.00%	13.00%
High Yield/Specialty Credit	16.99%	15.00%	3.24%	10.50%	19.50%
Core Fixed Income	12.13%	10.00%	2.31%	8.00%	12.00%
Cash	1.51%	1.50%	0.23%	0.00%	3.00%
Real Return	6.12%	10.00%	-3.37%	7.00%	13.00%
Real Estate	6.02%	10.00%	-5.73%	7.00%	13.00%
Opportunistic	3.31%	0.00%	3.32%	0.00%	5.00%

KRS Investment Committee Meeting - Performance Report



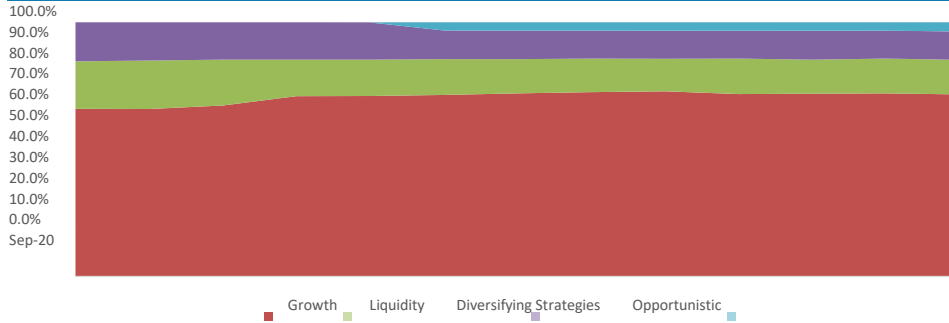
Total KERS - H INS  
Risk Categorization Performance As of September 30, 2021

	Market Value (\$USD)	% of Portfolio	MTD	QTD	YTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year	Inception	IRR 1 YR
<b>Total Portfolio</b>	\$ 628,431,703	100.0%	-0.7%	1.4%	1.4%	20.9%	9.5%	9.8%	8.7%	6.7%	7.4%	7.7%	21.0%
<i>KERS-H Insurance IPS Policy Index</i>			-0.3%	1.3%	1.3%	20.7%	9.2%	9.4%	8.8%	6.9%	7.7%	7.9%	20.7%
<b>Growth</b>	\$ 450,553,919	71.7%	-1.2%	1.3%	13.1%	26.5%							
<i>Growth Custom Benchmark</i>			-1.9%	0.8%	12.8%	27.3%	13.0%						13.1%
<b>Public Equity</b>	\$ 277,202,176	44.1%	-4.1%	-1.0%	11.6%	29.6%							
<i>Global Equity Blended Index</i>			-3.8%	-1.3%	10.9%	28.6%	12.2%	13.1%	11.9%	7.9%	9.2%		10.6%
<b>U.S. Equity</b>	\$ 139,932,216	22.3%	-4.4%	-0.2%	15.5%	33.0%							
<i>KY Domestic Equity Blend</i>			-4.5%	-0.1%	15.0%	31.9%	16.0%	16.8%	16.6%	10.0%	10.8%		11.9%
<b>Non U.S. Equity</b>	\$ 137,269,960	21.8%	-3.9%	-1.7%	7.7%	26.2%							
<i>KY Ret. Int'l Eq. Blended Index</i>			-3.2%	-2.6%	6.8%	25.2%	8.3%	9.2%	7.9%	6.9%	6.9%		8.2%
<b>Private Equity</b>	\$ 56,330,929	9.0%	11.4%	12.9%	33.5%	44.9%							
<i>Insurance Private Equity Custom Benchmark</i>			1.4%	19.9%	30.1%	11.2%	13.6%	14.3%					10.6%
<b>High Yield/Specialty Credit</b>	\$ 117,020,814	18.6%	0.7%	1.8%	7.7%	12.3%							
<i>High Yield Custom Benchmark</i>			0.3%	1.0%	4.5%	9.8%	5.5%						5.2%
<b>Liquidity</b>	\$ 85,352,532	13.6%	-0.1%	0.2%	0.6%	1.9%							
<i>Liquidity Custom Benchmark</i>			-0.8%	0.0%	-1.5%	-0.8%	5.1%						4.7%
<b>Core Fixed Income</b>	\$ 75,918,369	12.1%	-0.2%	0.2%	0.8%	2.2%							
<i>Bloomberg Barclays U.S. Aggregate Bond Index</i>			-0.9%	0.0%	-1.6%	-0.9%	5.4%	2.9%	3.0%				4.0%
<b>Cash</b>	\$ 9,434,163	1.5%	0.0%	0.0%	0.1%	0.1%	1.1%	1.1%	0.6%	1.3%	2.4%		2.9%
<i>FTSE Treasury Bill-3 Month</i>			0.0%	0.0%	0.0%	0.1%	1.1%	1.1%	0.6%	1.3%	2.4%		2.9%
<b>Diversifying Strategies</b>	\$ 70,336,826	11.2%	1.0%	2.7%	11.5%	18.2%							
<i>Diversifying Strategies Custom</i>			1.1%	2.5%	7.0%	8.7%	5.6%						5.5%
<b>Real Return</b>	\$ 40,033,232	6.4%	-0.5%	0.4%	10.1%	19.7%							
<i>Insurance Real Return Custom Bmk</i>			0.9%	10.7%	20.3%	6.4%	4.3%	3.6%					3.6%
<b>Real Estate</b>	\$ 30,303,594	4.8%	3.4%	6.5%	13.5%	17.4%							
<i>NCREIF NPI ODCE Net 1Qtr in Arrears Index</i>			3.7%	3.7%	6.8%	7.1%	4.6%	5.6%	8.6%	6.6%	6.6%		6.3%
<b>Opportunistic</b>	\$ 22,232,239	3.5%	1.1%	2.9%	8.7%								



**Total KERS - H INS**  
**Asset Allocation Over Time**  
**As of September 30, 2021**

**Asset Allocation Over time**

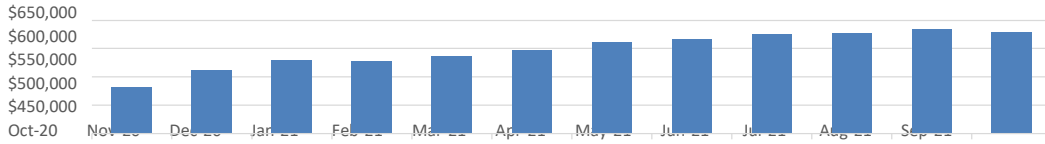


Risk Categorization	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021
Growth	72.60%	72.88%	71.84%	71.96%	72.11%	71.69%
Liquidity	13.15%	12.86%	13.91%	13.44%	13.66%	13.58%
Diversifying Strategies	11.06%	10.99%	10.93%	11.26%	11.01%	11.19%
Opportunistic	3.20%	3.27%	3.32%	3.35%	3.24%	3.54%

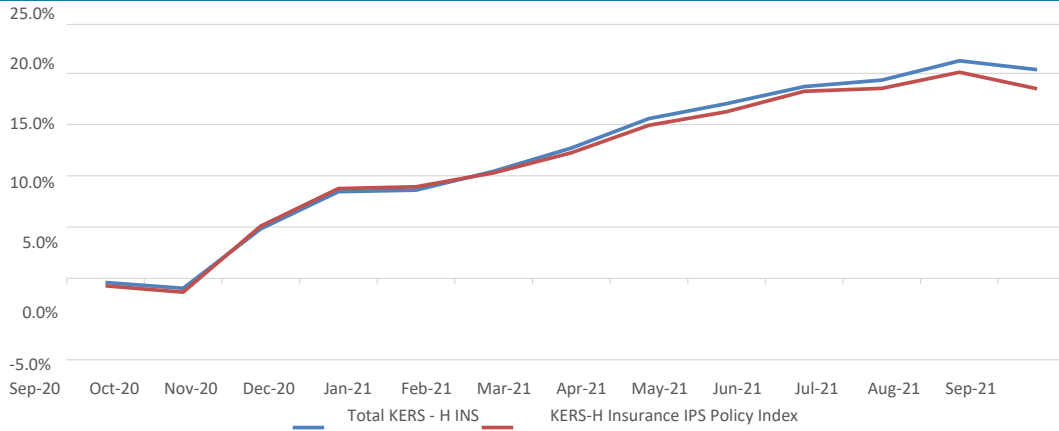


**Total KERS - H INS**  
 Summary  
 As of September 30, 2021

Market Value Over Time (\$USD 000)



Cumulative Performance Over 1 Year



KRS Investment Committee Meeting - Performance Report



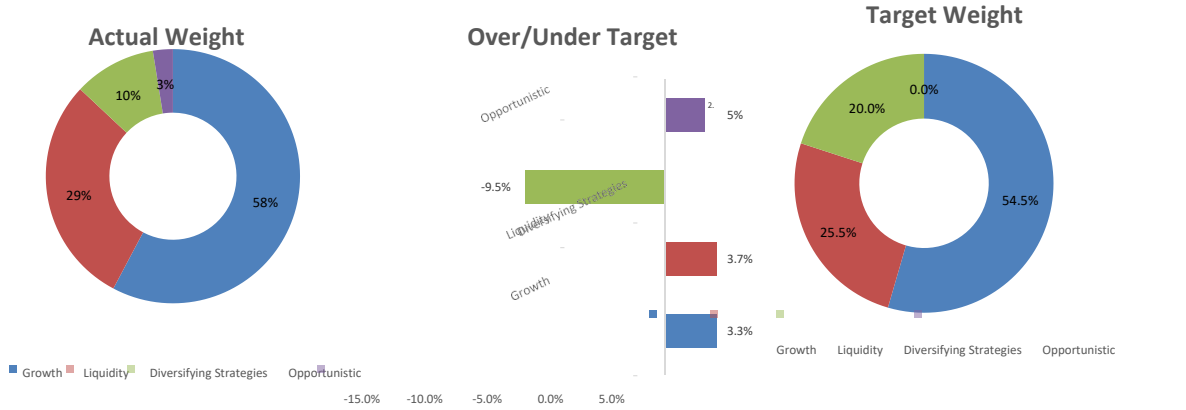
**Total SPRS**  
Risk Categorization Summary As of September 30, 2021

	Market Value (\$USD)	% of Portfolio	MTD	QTD	YTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year	Inception	IRR 1 YR
<b>Total Portfolio</b>	\$ 353,014,687	100.0%	-0.6%	1.5%	1.5%	21.4%	9.8%	10.1%	8.9%	6.8%	7.5%	7.7%	21.5%
<i>SPRS Pension IPS Policy Index</i>			-0.3%	1.3%	1.3%	20.7%	9.2%	9.4%	8.8%	6.9%	7.7%	7.9%	20.7%
<b>Growth</b>	\$ 203,921,102	57.8%	-1.5%	1.1%	13.3%	26.7%							
<i>Growth Custom Benchmark</i>			-1.9%	0.8%	12.8%	27.3%	13.0%						13.1%
<b>Liquidity</b>	\$ 103,194,548	29.2%	-0.1%	0.1%	0.7%	2.0%							
<i>Liquidity Custom Benchmark</i>			-0.8%	0.0%	-1.5%	-0.8%	5.1%						4.7%
<b>Diversifying Strategies</b>	\$ 36,968,885	10.5%	1.1%	2.8%	12.4%	19.4%							
<i>Diversifying Strategies Custom</i>			1.1%	2.5%	7.0%	8.7%	5.6%						5.5%
<b>Opportunistic</b>	\$ 8,947,853	2.5%	1.1%	2.9%	8.7%								



**Total SPRS**  
**Asset Allocation vs Targets**  
**As of September 30, 2021**

**Actual vs Target Weights**



Risk Categorization	Ending Market Value (\$USD)	Actual Weight	Target Weight	Relative
Growth	\$203,921,102	57.8%	54.5%	3.3%
Liquidity	\$103,194,548	29.2%	25.5%	3.7%
Diversifying Strategies	\$36,968,885	10.5%	20.0%	-9.5%
Opportunistic	\$8,947,853	2.5%	0.0%	2.5%

Asset Allocation	Actual	Target	Target Difference	IPS Min	IPS Max
US Equity	22.38%	21.75%	0.63%	15.23%	28.28%
Non-US Equity	22.32%	21.75%	0.57%	15.23%	28.28%
Private Equity	9.93%	10.00%	-0.07%	7.00%	13.00%
High Yield/Specialty Credit	15.53%	15.00%	0.53%	10.50%	19.50%
Core Fixed Income	12.10%	10.00%	2.10%	8.00%	12.00%
Cash	2.70%	1.50%	1.20%	0.00%	3.00%
Real Return	6.03%	10.00%	-3.97%	7.00%	13.00%
Real Estate	5.85%	10.00%	-4.15%	7.00%	13.00%
Opportunistic	3.11%	0.00%	3.11%	0.00%	5.00%

KRS Investment Committee Meeting - Performance Report



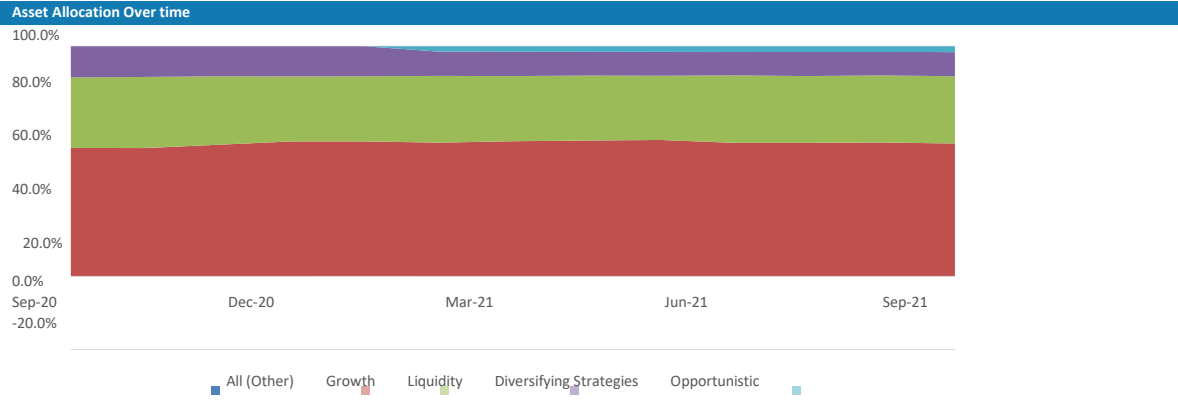
Total SPRS  
Risk Categorization Performance As of September 30, 2021

	Market Value (\$USD)	% of Portfolio	MTD	QTD	YTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year	Inception	IRR 1 YR
<b>Total Portfolio</b>	\$ 353,014,687	100.0%	-0.6%	1.5%	1.5%	21.4%	9.8%	10.1%	8.9%	6.8%	7.5%	7.7%	21.5%
SPRS Pension IPS Policy Index			-0.3%	1.3%	1.3%	20.7%	9.2%	9.4%	8.8%	6.9%	7.7%	7.9%	20.7%
<b>Growth</b>	\$ 203,921,102	57.8%	-1.5%	1.1%	13.3%	26.7%							
Growth Custom Benchmark			-1.9%	0.8%	12.8%	27.3%	13.0%						13.1%
<b>Public Equity</b>	\$ 122,565,073	34.7%	-4.1%	-1.0%	11.6%	29.7%							
Global Equity Blended Index			-3.8%	-1.3%	10.9%	28.6%	12.2%	13.1%	11.9%	7.9%	9.2%		10.6%
<b>U.S. Equity</b>	\$ 63,294,704	17.9%	-4.4%	-0.2%	15.5%	33.1%							
KY Domestic Equity Blend			-4.5%	-0.1%	15.0%	31.9%	16.0%	16.8%	16.6%	10.0%	10.8%		11.9%
<b>Non U.S. Equity</b>	\$ 59,270,369	16.8%	-3.9%	-1.8%	7.6%	26.2%							
KY Ret. Int'l Eq. Blended Index			-3.2%	-2.6%	6.8%	25.2%	8.3%	9.2%	7.9%	6.9%	6.9%		8.2%
<b>Private Equity</b>	\$ 20,293,550	5.7%	9.6%	11.2%	37.6%	47.1%							
Pension Private Equity Custom Benchmark			2.7%	4.2%	28.9%	37.8%	16.2%	15.9%	15.4%				11.6%
<b>High Yield/Specialty Credit</b>	\$ 61,062,478	17.3%	0.8%	2.0%	8.0%	12.7%							
High Yield Custom Benchmark			0.3%	1.0%	4.5%	9.8%	5.5%						5.2%
<b>Liquidity</b>	\$ 103,194,548	29.2%	-0.1%	0.1%	0.7%	2.0%							
Liquidity Custom Benchmark			-0.8%	0.0%	-1.5%	-0.8%	5.1%						4.7%
<b>Core Fixed Income</b>	\$ 79,954,035	22.6%	-0.1%	0.1%	0.8%	2.2%							
Bloomberg Barclays U.S. Aggregate Bond Index			-0.9%	0.0%	-1.6%	-0.9%	5.4%	2.9%	3.0%				4.0%
<b>Cash</b>	\$ 23,240,514	6.6%	0.0%	0.0%	0.1%	0.1%							
FTSE Treasury Bill-3 Month			0.0%	0.0%	0.0%	0.1%	1.1%	1.1%	0.6%	1.3%	2.4%		2.9%
<b>Diversifying Strategies</b>	\$ 36,968,885	10.5%	1.1%	2.8%	12.4%	19.4%							
Diversifying Strategies Custom			1.1%	2.5%	7.0%	8.7%	5.6%						5.5%
<b>Real Return</b>	\$ 21,798,950	6.2%	-0.3%	0.4%	11.4%	21.7%							
Pension Real Return Custom Bmk			0.3%	0.9%	12.0%	22.3%	5.8%	4.1%	3.5%				3.5%
<b>Real Estate</b>	\$ 15,169,935	4.3%	3.2%	6.7%	13.7%	17.8%							
NCREIF NPI ODCE Net 1Qtr in Arrears Index			3.7%	3.7%	6.8%	7.1%	4.6%	5.6%	8.6%	6.6%	6.6%		6.3%
<b>Opportunistic</b>	\$ 8,947,853	2.5%	1.1%	2.9%	8.7%								





**Total SPRS**  
**Asset Allocation Over Time As of September 30, 2021**

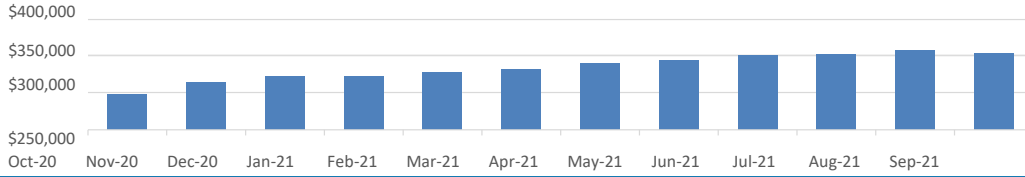


Risk Categorization	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021
All (Other)	0.00%	0.00%	0.00%	0.00%	0.00%	-0.01%
Growth	59.09%	59.30%	58.06%	58.09%	58.24%	57.77%
Liquidity	28.17%	27.94%	29.28%	28.95%	29.15%	29.23%
Diversifying Strategies	10.43%	10.39%	10.28%	10.56%	10.29%	10.47%
Opportunistic	2.32%	2.37%	2.39%	2.41%	2.32%	2.53%

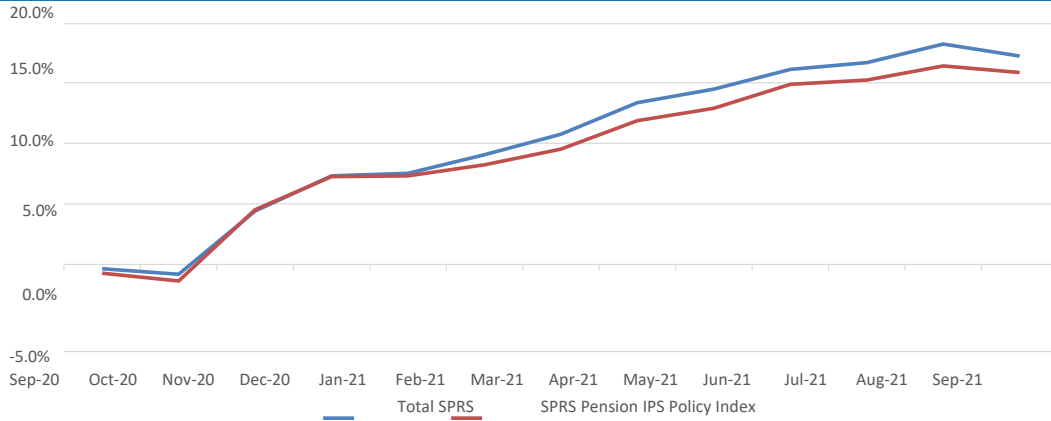


**Total SPRS**  
 Summary  
 As of September 30, 2021

**Market Value Over Time (\$USD 000)**



**Cumulative Performance Over 1 Year**





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**UPDATE:**  
**AXIOM INVESTORS**  
**INTERNATIONAL SMALL CAP EQUITY**

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Date: November 3, 2021  
To: KRS Investment Committee  
From: Joe Gilbert, Director of Equity

**Overview**

The KPPPA Office of Investments' recommendation for Axiom Investors to manage an active non-U.S. small cap equity mandate was approved by the KRS & CERS Investment Committees on August 24<sup>th</sup> & 25<sup>th</sup>, respectively. Both committees approved the recommendation contingent on successful investment management agreement negotiations. The CERS Investment Committee approval was also subject to final approval at its November meeting.

The KRS & CERS Board of Directors subsequently ratified the decision of their corresponding investment committees on September 9<sup>th</sup> & 15<sup>th</sup>, respectively.

Staff was notified of the resignation of Kurt Polk, President, who oversaw the operations side of the business on August 24<sup>th</sup>. Staff's assessment was that there would be no deterioration in Axiom's business due to Mr. Polk's departure. Since the firm's announcement, staff has maintained that Mr. Polk's departure should not affect the decision to move forward with funding the investment mandate. Any risk of business disruptions are mitigated by the continued leadership of tenured department heads of operations, compliance, distribution, and marketing who continue to report to the same managerial committee as before.

The Wilshire manager research team's position on Mr. Polk's departure aligns with the view of KPPA investment staff. The following is an extract from a statement Wilshire released at the time of Axiom's announcement:

*"... There will be no impact to Axiom's Investment teams or strategies and the firm does not plan on hiring a replacement. Manager research views the departure as a non-material event and there will be no ratings changes as a result of this announcement."*

**Update**

Since the investment committee meetings, KPPA investment staff has continued to research and monitor Axiom with particular focus on their non-U.S. small cap equity business. Specifically, whether any issues arose from Mr. Polk's impending departure surrounding client stability. The following is an excerpt received from Axiom management:

*"..., there have been no client losses (or notification of upcoming client terminations) or concerns (we have actually had several new accounts fund); ... just support ... and comfort with the current coverage of non-investment functions..."*

The firm has added six new accounts to the strategy post the announcement of Mr. Polk's departure. The total number of clients employing the International Small Cap product now stands at 72, with assets just under \$1.2 billion. The strategy has not lost any accounts since the announcement.

**Current Standing**

The manager and staff have agreed to investment guidelines that strike a balance between the flexibility required to manage the strategy as intended and provide sufficient guardrails to ensure proper diversification. The two parties have exchanged in the first round of comments regarding the investment management agreement, and are negotiating points of disagreement. Investment and operations staffs have engaged the custodial bank to begin the account opening and unitization schematic process. In summary, staff continues to move forward with the operational side of establishing a new mandate so that funding can occur quickly once final approval is given.

**Moving Forward**

Given our updated research and original conviction in Axiom, we ask that the committee grant final approval to move forward in funding the Axiom International Small Cap mandate. We anticipate the IMA negotiations and final preparations for transition funding to take place over the next few weeks.