



Investments and Finance Sub-Committee
Monday, February 12th, 2024 at 10:00 a.m.
124 West Capitol Avenue, Suite 400, Little Rock 72201

Hybrid Meeting: Arkansas Public Employees' Retirement System Board Room and Video Conference

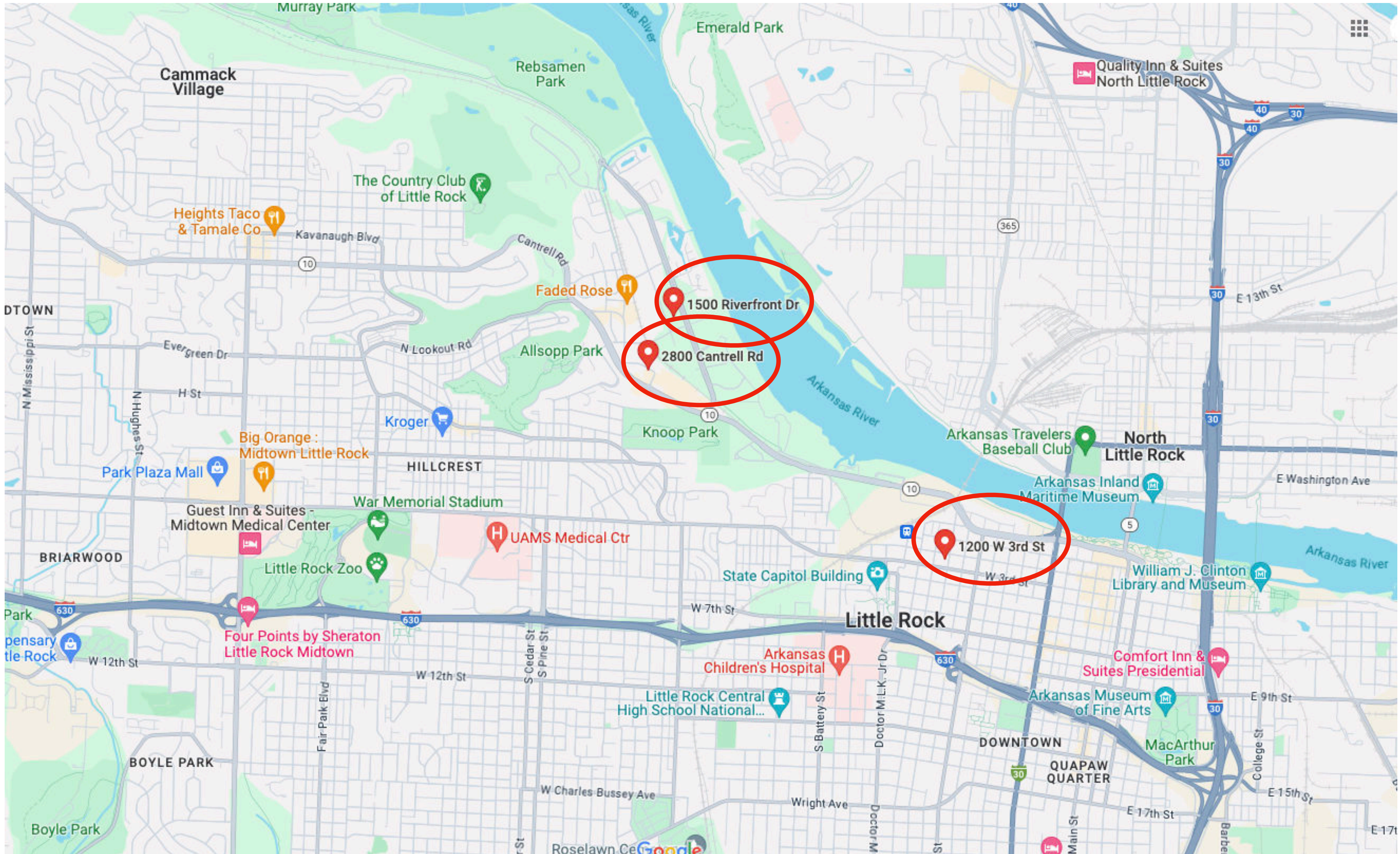
AGENDA

1. Real Estate Options Update
2. Request for Qualifications for Securities Litigation Firms
3. Fixed Income and Domestic Equity Update
4. DROP Rate



Property Review *Own vs. Lease*







Investments and Finance Sub-Committee
February 12, 2024

**APERS 2024 Request for Qualifications –
Securities Litigation Counsel**

**APERS 2024 REQUEST FOR QUALIFICATIONS
SECURITIES LITIGATION COUNSEL
RESPONSES**

- 1. Barrack Rodos & Bacine***
- 2. Berger Montague PC**
- 3. Berman Tabacco***
- 4. Bernstein Liebhard LLP and Quinn Emanuel Urquhart & Sullivan, LLP**
- 5. Bernstein Litowitz Berger & Grossmann LLP**
- 6. Bleichmar Fonti & Auld LLP**
- 7. Block & Leviton LLP**
- 8. Cohen Milstein Sellers & Toll PLLC**
- 9. DiCello Levitt LLP***
- 10. Kaplan Fox and Kilsheimer LLP**
- 11. Kessler Topaz Meltzer & Check, LLP**
- 12. Labaton Keller Sucharow LLP**
- 13. Loeff, Cabraser, Heimann & Bernstein, LLP**
- 14. Nix Patterson, LLP**
- 15. Pomerantz LLP**
- 16. Robbins Geller Rudman & Dowd LLP***
- 17. The Rosen Law Firm, P.A.**
- 18. Saxena White P.A.***
- 19. Scott + Scott Attorneys at Law LLP**
- 20. Wolf Haldenstein Adler Freeman & Herz LLP**
- 21. Wolf Popper LLP**

*new submissions for 2024 RFQ

APERS Fixed Income & Domestic Equity Analysis

APERS Investment Finance Subcommittee

February 12, 2024

The 2 Largest Asset Classes in the Portfolio

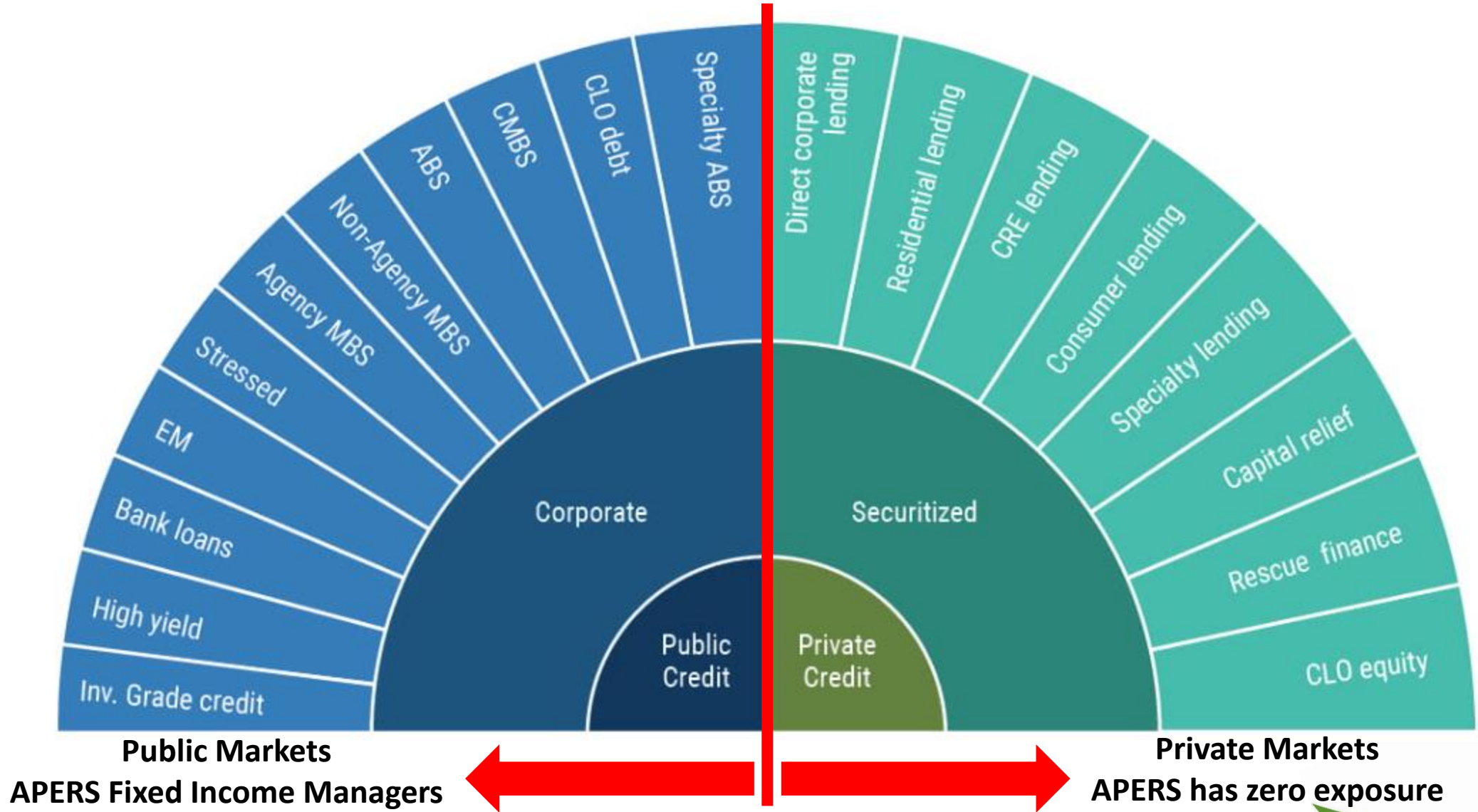
Proposed Mix with 5% Private Equity

	Current Policy	Nov 16 Board Meeting: 5% PE (Mix 2)	Change	Today's proposal: 5% PE, 3% Converts	Change
Domestic Equity	33%	35%	2%	36%	3%
International Equity	24%	19%	-5%	17%	-7%
Convertible Bonds	4%	0%	-4%	3%	-1%
Fixed Income	18%	20%	2%	21%	3%
Real Assets	16%	16%	0%	16%	0%
Diversified Strategies	5%	5%	0%	2%	-3%
Private Equity	0%	5%	5%	5%	5%
	100%	100%		100%	
Portfolio Characteristics:					
Expected Return	7.00%	7.07%	0.07%	7.08%	0.08%
Risk	12.60%	12.63%	0.03%	12.65%	0.05%
Sharpe Ratio	0.317	0.322	0.005	0.323	0.006
% Domestic Equity of Public Equity	58%	65%	7%	68%	10%

APERS Fixed Income Analysis

- The Fixed Income asset class is the second largest asset class in the portfolio
- The purpose of the analysis was to conduct a deep analysis of the overall structure of the Fixed Income Portfolio which has not changed in the past 15 years
- CONCLUSION:
 - The Fixed Income asset class should be restructured.
 - The recommendation is to
 - ❖ reduce the exposure to Core Plus
 - ❖ add High Yield,
 - ❖ add Private Credit
- The fund can achieve higher expected returns, with less volatility/risk.

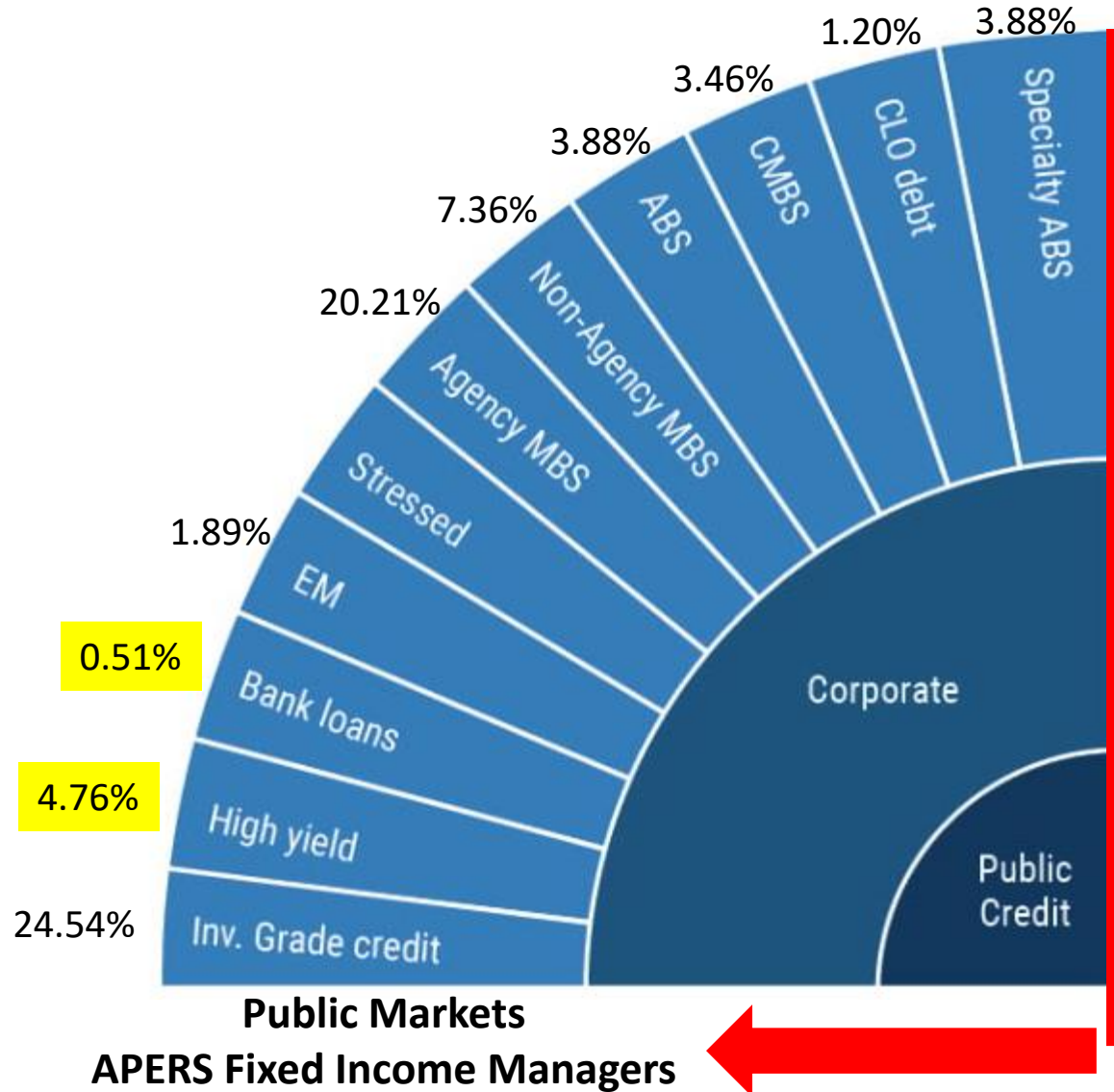
The Complete Fixed Income Horizon



How is APERS currently invested?

	11/30/2023		11/30/2023		11/30/2023		\$ 1,889,560,839		
	MacKay		DoubleLine		PGIM				
	\$ 641,213,719		\$ 598,283,772		\$ 650,063,348				
	\$ amount		\$ amount		\$ amount		\$ amount	APERS Portfolio	Bloomberg Agg Index
US Govt	\$ -	US Govt	\$ -	US Govt	\$ 12,972,535	US Govt	\$ 12,972,535	0.69%	0.00%
Agencies	\$ -	Agencies	\$ -	Agencies	\$ 1,776,107	Agencies	\$ 1,776,107	0.09%	0.99%
Mortgages	\$ 161,008,765	Mortgages	\$ 114,352,962	Mortgages	\$ 106,585,301	Mortgages	\$ 381,947,028	20.21%	26.58%
Non-Agency MBS	\$ 73,226,607	Non-Agency MBS	\$ 65,807,422	Non-Agency MBS	\$ -	Non-Agency MBS	\$ 139,034,029	7.36%	0.00%
IG Corporates	\$ 201,982,321	IG Corporates	\$ 100,485,094	IG Corporates	\$ 161,148,098	IG Corporates	\$ 463,615,513	24.54%	24.62%
Non-US Govt Related	\$ -	Non-US Govt Related	\$ -	Non-US Govt Related	\$ 5,536,220	Non-US Govt Related	\$ 5,536,220	0.29%	2.30%
CMBS	\$ 33,278,992	CMBS	\$ 32,096,879	CMBS	\$ -	CMBS	\$ 65,375,871	3.46%	1.67%
CMO	\$ -	CLO	\$ 22,607,882	CLO	\$ -	CLO	\$ 22,607,882	1.20%	0.00%
ABS	\$ 42,191,863	ABS	\$ 31,141,279	ABS	\$ -	ABS	\$ 73,333,142	3.88%	0.48%
Non-US Govt.	\$ -	Non-US Govt.	\$ -	Non-US Govt.	\$ -	Non-US Govt.	\$ -	0.00%	0.00%
Municipals	\$ 1,025,942	Municipals	\$ 221,798	Municipals	\$ 8,172,951	Municipals	\$ 9,420,690	0.50%	0.60%
High Yield	\$ 26,033,277	High Yield	\$ 20,334,288	High Yield	\$ 43,523,014	High Yield	\$ 89,890,579	4.76%	0.00%
Bank Loan	\$ 897,699	Bank Loan	\$ -	Bank Loan	\$ 8,810,448	Bank Loan	\$ 9,708,147	0.51%	0.00%
Emerging Markets	\$ -	Emerging Markets	\$ 22,039,603	Emerging Market	\$ 13,707,264	Emerging Markets	\$ 35,746,867	1.89%	1.26%
Treasuries	\$ 45,782,660	Treasuries	\$ 143,607,066	Treasuries	\$ -	Treasuries	\$ 189,389,726	10.02%	41.50%
Cash & Equivalents	\$ 8,015,171	Cash & Equivalents	\$ 15,936,202	Cash & Equivaler	\$ 4,959,822	Cash & Equivalents	\$ 28,911,195	1.53%	0.00%
Non-US Dollar	\$ -	Non-US Dollar	\$ -	Non-US Dollar	\$ 57,336,996	Non-US Dollar	\$ 57,336,996	3.03%	0.00%
Swaps	\$ -	Swaps	\$ -	Swaps	\$ 322,187	Swaps	\$ 322,187	0.02%	0.00%
Structured Prod	\$ -	Structured Prod	\$ -	Structured Prod	\$ 225,212,405	Structured Prod	\$ 225,212,405	11.92%	0.00%
Fund A HYAC	\$ 1,090,063	Fund A	\$ -	Fund A	\$ -	HYAC	\$ 1,090,063	0.06%	0.00%
Fund B DBA	\$ 46,680,359	Fund B	\$ -	Fund B	\$ -	DBA	\$ 46,680,359	2.47%	0.00%
Fund C	\$ -	Fund C DBFRX	\$ 20,889,336	Fund C	\$ -	DBFRX	\$ 20,889,336	1.11%	0.00%
Fund D	\$ -	Fund D DBLGX	\$ 8,763,962	Fund D	\$ -	DBLGX	\$ 8,763,962	0.46%	0.00%
	\$ 641,213,719		\$ 598,283,772		\$ 650,063,348		\$ 1,889,560,839	100.00%	100.00%
APERS Fixed Income Portfolio, 11/30/2023								4.67%	4.53%

How does APERS compare to the Index?



	\$ amount	APERS Portfolio	Bloomberg Agg Index
US Govt	\$ 12,972,535	0.69%	0.00%
Agencies	\$ 1,776,107	0.09%	0.99%
Mortgages	\$ 381,947,028	20.21%	26.58%
Non-Agency MBS	\$ 139,034,029	7.36%	0.00%
IG Corporates	\$ 463,615,513	24.54%	24.62%
Non-US Govt Related	\$ 5,536,220	0.29%	2.30%
CMBS	\$ 65,375,871	3.46%	1.67%
CLO	\$ 22,607,882	1.20%	0.00%
ABS	\$ 73,333,142	3.88%	0.48%
Non-US Govt.	\$ -	0.00%	0.00%
Municipals	\$ 9,420,690	0.50%	0.60%
High Yield	\$ 89,890,579	4.76%	0.00%
Bank Loan	\$ 9,708,147	0.51%	0.00%
Emerging Markets	\$ 35,746,867	1.89%	1.26%
Treasuries	\$ 189,389,726	10.02%	41.50%
Cash & Equivalents	\$ 28,911,195	1.53%	0.00%
Non-US Dollar	\$ 57,336,996	3.03%	0.00%
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DBFRX	\$ 20,889,336	1.11%	0.00%
DBLGX	\$ 8,763,962	0.46%	0.00%
	\$ 1,889,560,839	100.00%	100.00%
		4.67%	4.53%

Can APERS increase expected return and decrease risk?

APERS Feb 2023 Return/Risk Expectations

Asset Class	2023 Expected Return	2022 Expected Return	Change in Expected Return	Risk
Domestic Equity	7.35%	6.60%	0.75%	18.05%
International Equity	7.45%	6.80%	0.65%	21.25%
Convertible Bonds	7.15%	6.25%	0.90%	14.25%
Fixed Income	4.25%	1.75%	2.50%	4.10%
Real Assets	6.40%	5.80%	0.60%	13.80%
<i>Real Estate</i>	5.75%	5.75%	0.00%	14.20%
<i>Timber</i>	5.40%	5.40%	0.00%	15.60%
<i>Farmland</i>	5.55%	5.50%	0.05%	15.95%
Diversified Strategies	5.55%	4.10%	1.45%	8.45%
Private Equity	8.50%	8.00%	0.50%	27.60%
Cash	2.75%	1.20%	1.55%	0.90%
<i>Inflation (CPI-U)</i>	2.50%	2.25%	0.25%	

Actual Nov 2023 Risk/Return Data

	CURRENT
Expected Return	3.33%
Beta to Bloomberg Agg	1.02
Tracking Error to Bloomberg Agg	1.81%
Volatility	4.60%
Sharpe Ratio	-0.25

*APERS Fixed Income Portfolio, 11/30/2023

Can APERS increase expected return and decrease risk?

Yes, the Risk/Return Expectations could improve

	CURRENT	PROPOSED
Expected Return	3.33%	4.18%
Beta to Bloomberg Agg	1.02	0.84
Tracking Error to Bloomberg Agg	1.81%	1.48%
Volatility	4.60%	3.80%
Sharpe Ratio	-0.25	-0.08

Compelling Assumptions for High Yield & Private Credit

Summary of Callan's Long-Term Capital Markets Assumptions (2024–2033)

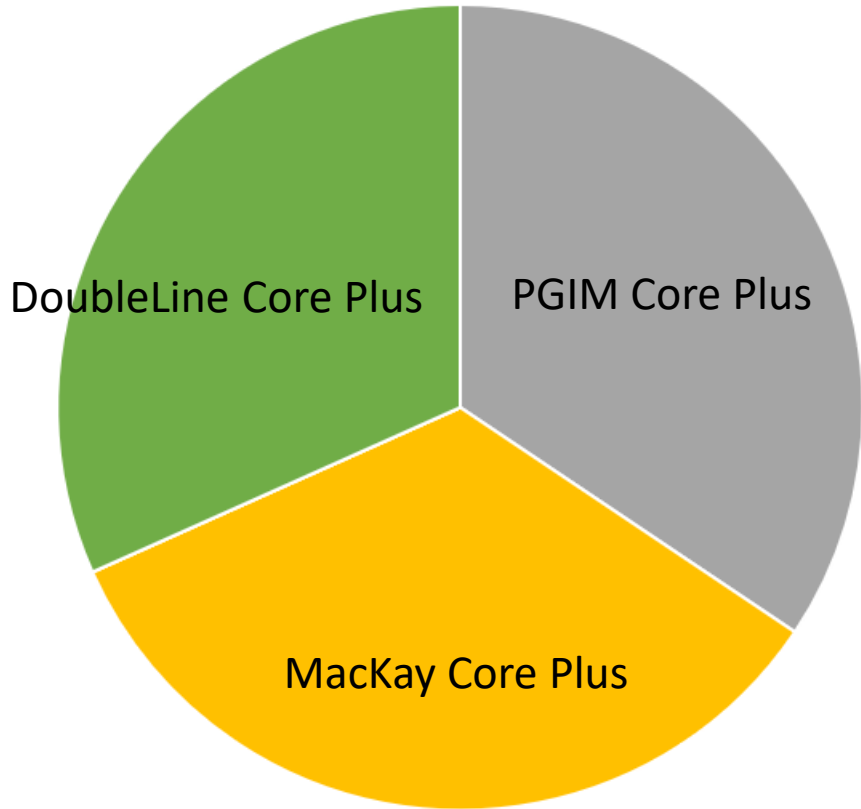
Asset Class	Index	Projected Return			Projected Risk	Projected Yield**
		1-Year Arithmetic	10-Year Geometric*	Real	Standard Deviation	
Equities						
Broad U.S. Equity	Russell 3000	8.85%	7.65%	5.15%	17.40%	1.95%
Large Cap U.S. Equity	S&P 500	8.70%	7.50%	5.00%	17.00%	2.00%
Smid Cap U.S. Equity	Russell 2500	9.80%	7.70%	5.20%	22.00%	1.75%
Global ex-U.S. Equity	MSCI ACWI ex USA	9.65%	7.65%	5.15%	21.40%	3.70%
Developed ex-U.S. Equity	MSCI World ex USA	9.25%	7.50%	5.00%	20.15%	3.75%
Emerging Markets Equity	MSCI Emerging Markets	10.65%	7.70%	5.20%	25.60%	3.55%
Fixed Income						
Short Duration Gov/Credit	Bloomberg 1-3 Year Gov/Credit	4.25%	4.25%	1.75%	2.40%	3.70%
Core U.S. Fixed	Bloomberg Aggregate	5.25%	5.25%	2.75%	4.25%	4.70%
Long Government	Bloomberg Long Gov	6.20%	5.40%	2.90%	13.75%	4.80%
Long Credit	Bloomberg Long Credit	6.85%	6.30%	3.80%	11.90%	6.20%
Long Government/Credit	Bloomberg Long Gov/Credit	6.55%	6.00%	3.50%	11.70%	5.55%
TIPS	Bloomberg TIPS	5.10%	5.05%	2.55%	5.40%	4.30%
High Yield	Bloomberg High Yield	7.30%	6.80%	4.30%	11.75%	8.45%
Global ex-U.S. Fixed	Bloomberg Global Agg ex US	3.60%	3.15%	0.65%	9.80%	2.70%
Emerging Markets Sov Debt	EMBI Global Diversified	6.75%	6.35%	3.85%	10.65%	7.70%
Alternatives						
Core Real Estate	NCREIF ODCE	6.85%	6.00%	3.50%	14.00%	4.00%
Private Infrastructure	MSCI GI Infra/FTSE Dev Core 50/50	7.30%	6.35%	3.85%	15.20%	4.80%
Private Equity	Cambridge Private Equity	12.15%	8.75%	6.25%	27.60%	0.00%
Private Credit	Cambridge Senior Debt Index	8.40%	7.40%	4.90%	15.70%	7.40%
Hedge Funds	Callan Hedge FOF Database	6.25%	6.05%	3.55%	8.20%	0.00%
Commodities	Bloomberg Commodity	5.45%	3.90%	1.40%	18.05%	3.00%
Cash Equivalents	90-Day T-Bill	3.00%	3.00%	0.50%	0.90%	3.00%
Inflation	CPI-U		2.50%		1.60%	

* Geometric returns are derived from arithmetic returns and the associated risk (standard deviation).

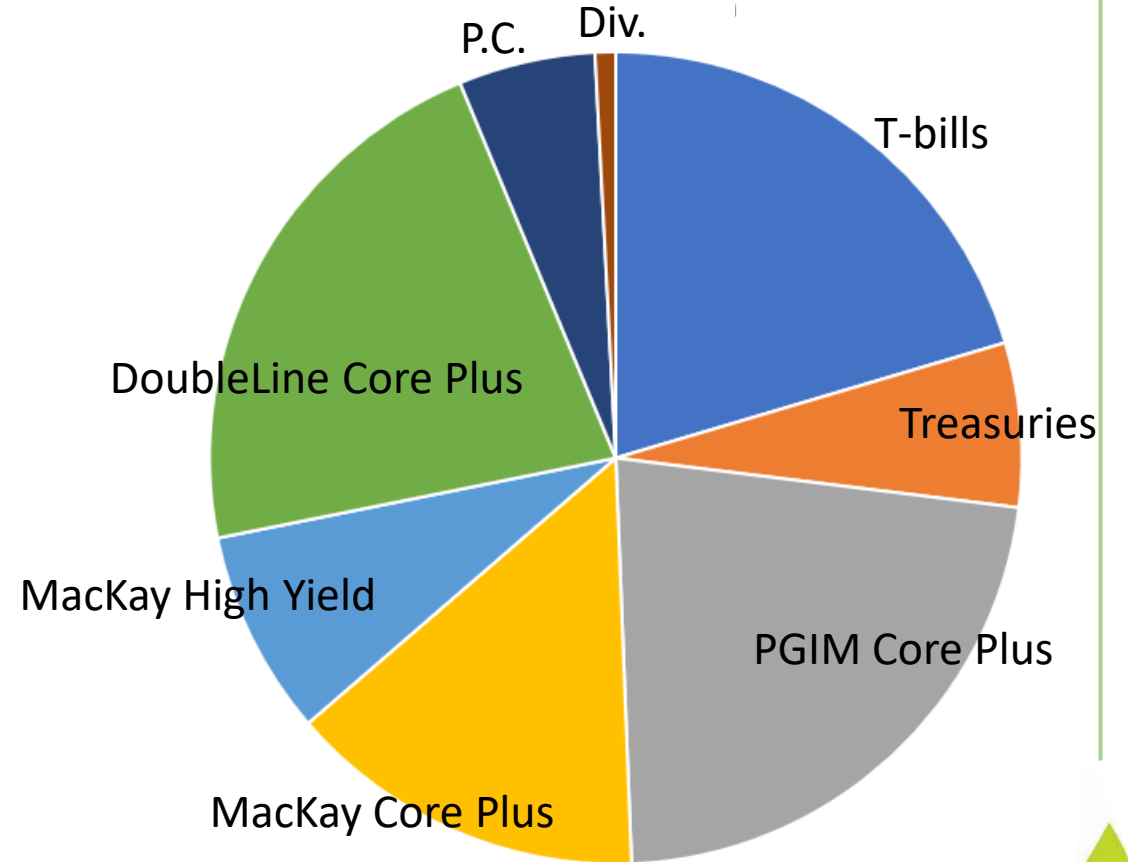
** Projected Yields represent the expected 10-year average yield

Proposal is to Structure a more diversified portfolio

Current



Propose a more Diversified Fixed Income Allocation



Proposal would also improve the Risk/Return expectations

	CURRENT					PROPOSED			
Expected Return	3.33%				Expected Return	4.18%			
Beta to Bloomberg Agg	1.02				Beta to Bloomberg Agg	0.84			
Tracking Error to Bloomberg Agg	1.81%				Tracking Error to Bloomberg Agg	1.48%			
Volatility	4.60%				Volatility	3.80%			
Sharpe Ratio	-0.25				Sharpe Ratio	-0.08			
				Tracking Error					Tracking Error
			Volatility Contribution	Tracking Error Contribution				Volatility Contribution	Tracking Error Contribution
	CURRENT					PROPOSED			
U.S. Treasury Bills	\$ -	0.00%	0.00%	10.40%	U.S. Treasury Bills	\$ 375,000,000	20.42%	-0.2%	19.6%
U.S. Treasuries	\$ -	0.00%	0.00%	29.40%	U.S. Treasuries	\$ 120,000,000	6.53%	13.8%	29.2%
PGIM Core Plus	\$ 631,957,032	34.40%	37.50%	23.30%	PGIM Core Plus	\$ 411,957,032	22.43%	29.5%	8.5%
MacKay Core Plus	\$ 622,574,079	33.90%	34.10%	21.40%	MacKay Core Plus	\$ 262,574,079	14.30%	17.3%	-1.9%
MacKay High Yield	\$ -	0.00%	0.00%	0.00%	MacKay High Yield	\$ 150,000,000	8.17%	9.6%	28.0%
DoubleLine Core Plus	\$ 582,165,535	31.70%	28.40%	15.60%	DoubleLine Core Plus	\$ 402,165,535	21.90%	23.8%	7.4%
MANAGER 2 Private Credit	\$ -	0.00%	0.00%	0.00%	MANAGER 2 Private Credit	\$ 100,000,000	5.44%	5.5%	25.1%
MANAGER 3 Diversified	\$ -	0.00%	0.00%	0.00%	MANAGER 3 Diversified	\$ 15,000,000	0.82%	0.7%	3.3%
	\$ 1,836,696,646					\$ 1,836,696,646			



APERS Domestic Equity Analysis

APERS Domestic Equity Analysis

- The Domestic Equity asset class is the largest asset class in the portfolio and is the main driver of returns in the portfolio.
- The APERS benchmark is the Russell 3000 Index (“RU3000”)
- The purpose and goal of the analysis was to conduct a deep analysis of the overall structure of the portfolio and to note any structural differences or concerns.
- **CONCLUSION** – The APERS CIO has issues and concerns with the portfolio structure.
- **RECOMMENDATIONS:**
 - Add a Mid Cap Growth investment manager.
 - Reduce Small Cap exposure.
 - Tilt towards Large and Mid Cap Growth.
 - add Large Cap Value Index for rebalancing flexibility and efficiency.

Issues and Concerns

- APERS CIO disagrees with the Investment Consultant’s structure of the portfolio.
- Comparing returns is simple. (APERS return vs. RU3000 return)
- Comparing the underlying exposure and risks is more challenging.

	APERS DOM EQUITY PORTFOLIO				RU3000
Current	GROWTH	CORE	VALUE	Total	Index
Large Cap	24.81%	24.45%	26.84%	76.10%	73.00%
Mid Cap				0.00%	22.00%
Small Cap	13.24%		10.66%	23.90%	5.00%
	38.05%	24.45%	37.51%		

- The portfolio is currently balanced between Growth and Value. Historically Growth outperforms Value.
- Having 0% Mid Cap exposure is structurally flawed. The Index has 22%
- APERS is significantly overweight small cap which has contributed to the tracking error.

Can APERS increase expected return and decrease risk?

Yes, the Risk/Return Expectations could improve

	<u>ACTUAL</u>	<u>Recommended</u>
Expected Return	10.45%	11.78%
Beta	1.01	1.00
Tracking Error	1.66%	1.52%
Volatility	17.38%	17.18%
Sharpe Ratio	0.37	0.45

Actual Returns vs Recommended Allocation Returns

<u>Return Horizon</u>	<u>Actual Portfolio</u>	<u>Recommended Portfolio</u>
Q3 2023 Return	-4.01%	-3.83%
Q4 2023 Return	11.88%	12.34%
Total 2-Quarter Return	7.39%	8.04%

Domestic Equity Analysis Process

CURRENT

	APERS DOM EQUITY PORTFOLIO				RU3000
Current	GROWTH	CORE	VALUE	Total	Index
Large Cap	24.81%	24.45%	26.84%	76.10%	73.00%
Mid Cap				0.00%	22.00%
Small Cap	13.24%		10.66%	23.90%	5.00%
	38.05%	24.45%	37.51%		

RECOMMENDED

	APERS DOM EQUITY PORTFOLIO				RU3000
Suggested	GROWTH	CORE	VALUE	Total	Index
Large Cap	35.00%	26.00%	20.00%	81.00%	73.00%
Mid Cap	10.00%			10.00%	22.00%
Small Cap	4.00%		5.00%	9.00%	5.00%
	49.00%	26.00%	25.00%		

- Step 1 was to run an optimization risk model. The model mathematically solves for a portfolio structure that maximizes expected return and minimizes volatility subject to risk constraints. The model:
 - First, tilted away from Small Cap and towards Large Cap,
 - Second, the model tilted away from Value and towards Growth.
- Step 2 was to take a deep dive into the structure of the RU3000.
 - APERS has no Mid Cap exposure. The RU3000 Index does have Mid Cap.
- Step 3 was to answer the basic question, “Why not just add the RU3000 Index?”

Why Not Just Add the RU3000?

REASON 1:

- The S&P 500 is better for the fund vs. the RU3000 Index.
- They are similar. Similar risk/return profiles. Returns & Volatility are very close.
- The S&P 500 has outperformed with slightly lower risk.
- Correlation between the two is nearly perfect. Sector weightings are close.
- RU3000 has less tech and more industrial exposure.
- Most notable difference. RU3000 has more small cap exposure. APERS obtains small cap exposure via active management.

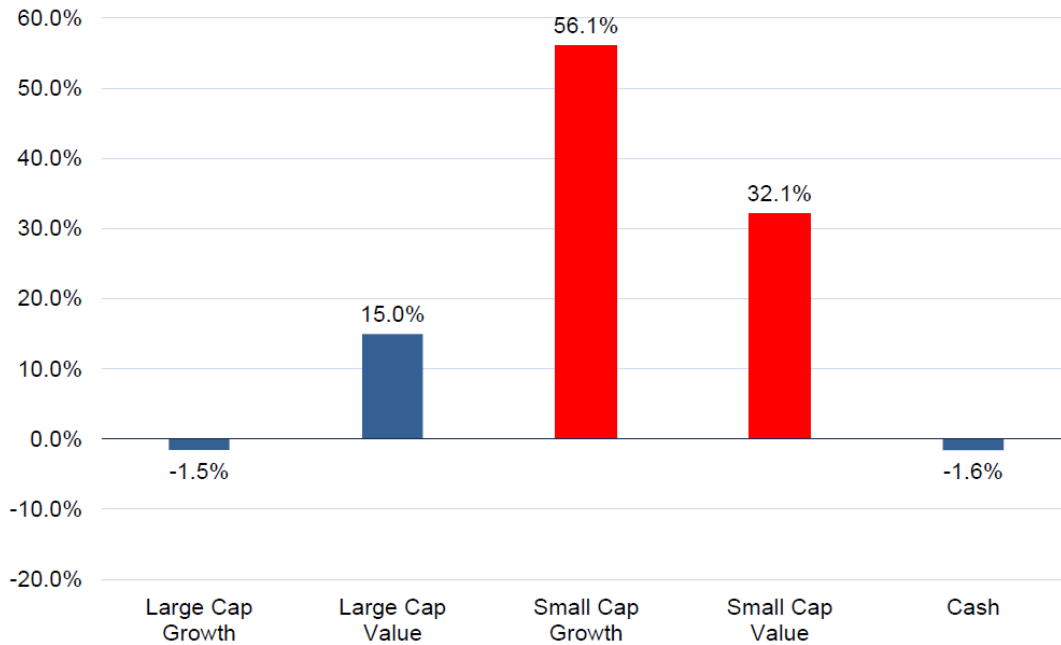
REASON 2:

- Analysis of APERS portfolio shows significant underweight to Large Cap and about an 18.5% overweight to Small Cap vs the RU3000.
- Adding the RU3000 would actually increase APERS Domestic Equity portfolio's tracking error to the RU3000 Index.

Why Not Just Add the RU3000?

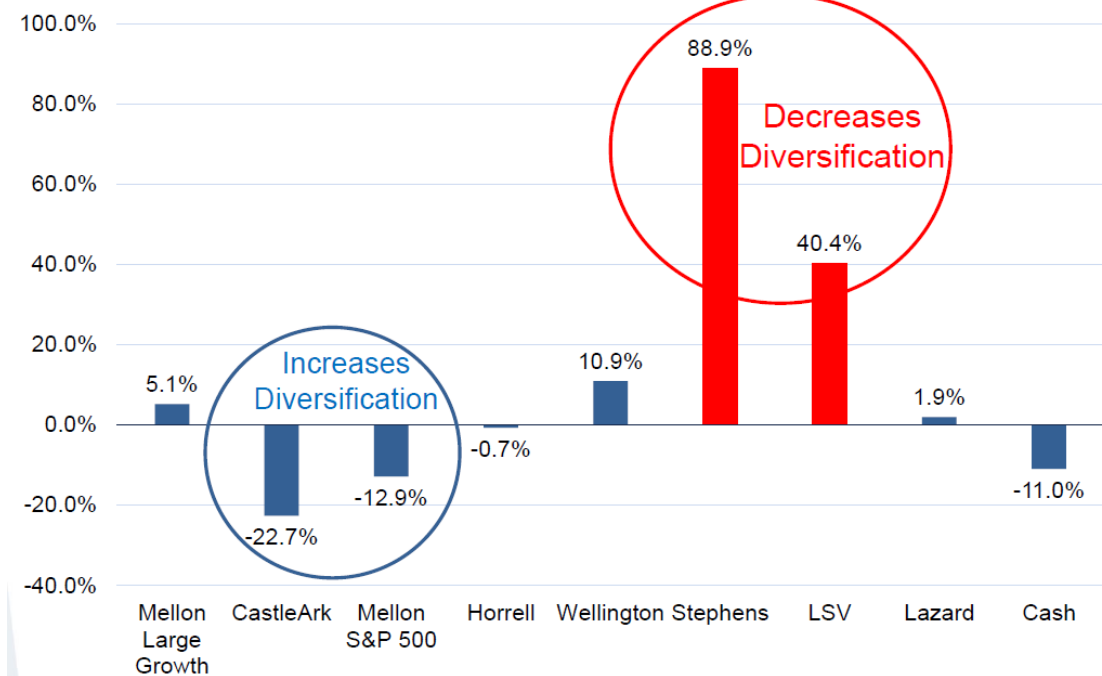
Overweight Small Cap has been a performance detractor

APERS Domestic Equity Tracking Error Contribution by Style Box



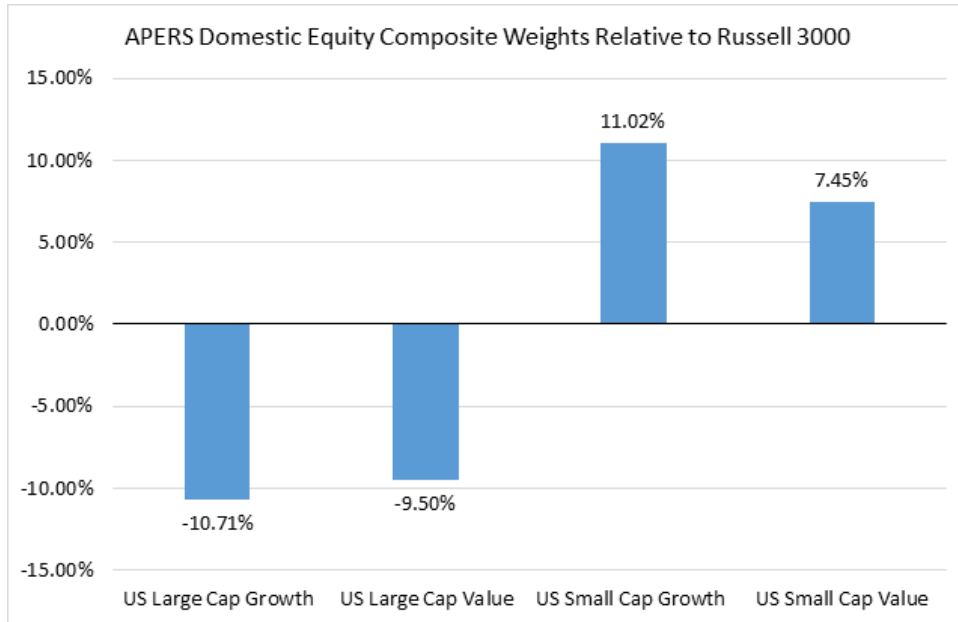
Over 100% of total tracking error is in Small Cap managers

APERS Domestic Equity Tracking Error Contribution by Manager

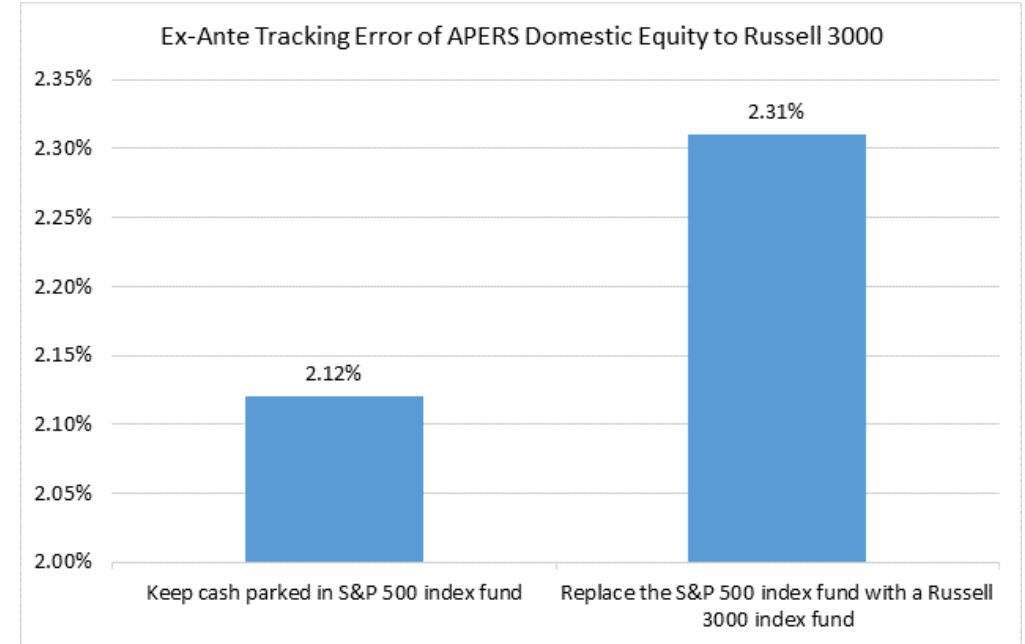


Why Not Just Add the RU3000?

+/- Weighting



Tracking Error



What is tracking error:

It is the variance between the performance of a portfolio and the performance of the portfolio's benchmark index over time.

Why Not Just Add the RU3000?

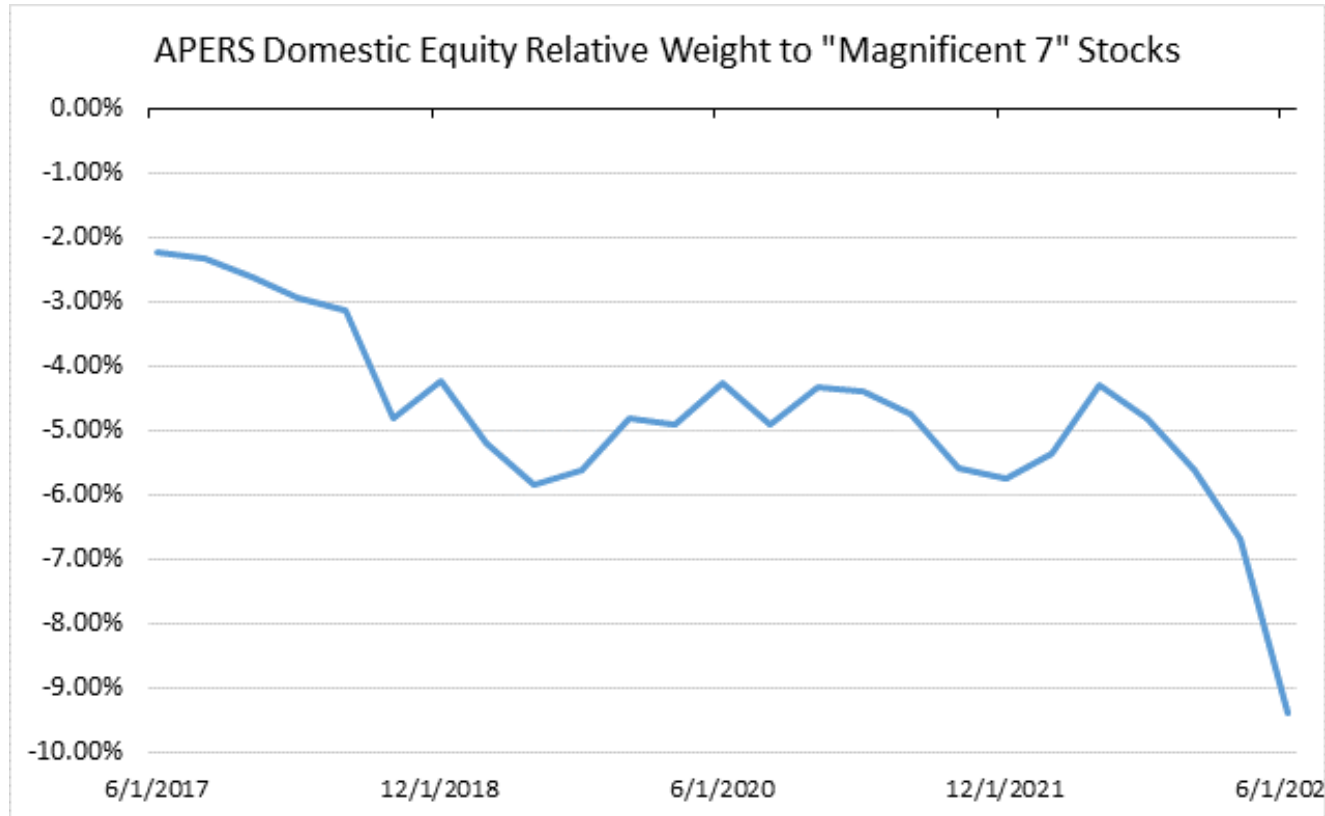
REASON 3:

- The only major difference between the two indices is the larger Small Cap exposure in the RU3000 which then becomes a question regarding the merits of allocating to small cap companies instead of large cap companies.
- APERS portfolio is already substantially overweight small cap stocks and small cap stocks are not compellingly cheap.
- Small cap stocks are more cyclically (economically) sensitive than Large Cap.

Why Not Just Add the RU3000?

REASON 4

- If you replaced the S&P 500 with the RU3000 it would increase the portfolio's underweight to the Magnificent 7 stocks by about 1 percentage point.



Hindsight is 20/20

Callan Recommendation, August 17, 2022

In August 2022, Callan recommended a rebalance towards neutral from a growth overweight.

Manager	Target		Benchmark	Alternative 1		Alternative 2	
	Assets	%		\$ mm	%	\$ mm	%
All Cap	1,107	27.5%		1,107	27.5%	906	22.5%
Lazard Asset Mgmt	503	12.5%	Russell 3000	604	15.0%	402	10.0%
CastleArk Mgmt	604	15.0%	Russell 3000 Growth	503	12.5%	503	12.5%
Large Cap	906	22.5%		604	15.0%	1,006	25.0%
Mellon S&P 500 Index Fd	704	17.5%	S&P 500	402	10.0%	805	20.0%
Horrell Passive	201	5.0%	S&P 500	201	5.0%	201	5.0%
Large/Mid Cap	1,107	27.5%		1,509	37.5%	1,509	37.5%
Wellington Mgmt	604	15.0%	Russell 1000 Value	503	12.5%	503	12.5%
New Large Cap Value Manager	0	0.0%	Russell 1000 Value	503	12.5%	503	12.5%
Intech	503	12.5%	Russell 1000 Growth	503	12.5%	503	12.5%
Small Cap	906	22.5%		805	20.0%	604	15.0%
LSV Asset Mgmt	402	10.0%	Russell 2000 Value	402	10.0%	302	7.5%
Stephens Investment Mgmt	503	12.5%	Russell 2000 Growth	402	10.0%	302	7.5%
Total US Equity	4,025	100.0%	Russell 3000	4,025	100.0%	4,025	100.0%



The recommendation was actually a Value tilt

Manager	Target		Benchmark	Alternative 1		Alternative 2	
	Assets	%		\$ mm	%	\$ mm	%
All Cap	1,107	27.5%		1,107	27.5%	906	22.5%
Lazard Asset Mgmt	503	12.5%	Russell 3000	604	15.0%	402	10.0%
CastleArk Mgmt	604	15.0%	Russell 3000 G	503	12.5%	503	12.5%
Large Cap	906	22.5%		604	15.0%	006	25.0%
Mellon S&P 500 Index Fd	704	17.5%	S&P 500	402	10.0%	805	20.0%
Horrell Passive	201	5.0%	S&P 500	201	5.0%	201	5.0%
Large/Mid Cap	1,107	27.5%		1,509	37.5%	509	37.5%
Wellington Mgmt	604	15.0%	Russell 1000 Va	503	12.5%	503	12.5%
New Large Cap Value Manager	0	0.0%	Russell 1000 Va	503	12.5%	503	12.5%
Intech	503	12.5%	Russell 1000 G	503	12.5%	503	12.5%
Small Cap	906	22.5%		503	12.5%	604	15.0%
LSV Asset Mgmt	402	10.0%	Russell 2000 Va	503	12.5%	302	7.5%
Stephens Investment Mgmt	503	12.5%	Russell 2000 G	805	20.0%	302	7.5%
Total US Equity	4,025	100.0%	Russell 3000	402	10.0%	025	100.0%
				402	10.0%		
				4,025	100.0%		

Alt 1	GROWTH	CORE	VALUE		RU3000
Large Cap	25.0%	15.0%	40.0%	80.0%	73%
Mid Cap				0.0%	22%
Small Cap	10.0%		10.0%	20.0%	5%
	35.0%	15.0%	50.0%		

- Notice the tilt towards Value, and the absence of Mid Cap Growth

The Board was correct

- The Board chose to not make any allocation changes.
- The decision saved the fund > \$60 million
- The recommended change would have outperformed the Callan Alt 1 proposal

Portfolio	Return from 9/30/2022 through 1/31/2024	Estimated Gain/Loss Compared to Actual Return
Callan Alternative 1	27.22%	-\$64,433,505
RECOMMENDATION	34.01%	\$175,202,524

*preliminary

Portfolio	Return from 9/30/2022 through 12/31/2023	Estimated Gain/Loss Compared to Actual Return
Callan Alternative 1	26.90%	-\$61,404,658
RECOMMENDATION	32.39%	\$132,236,924

Supplemental Information

APERS Historical Fixed Income Performance vs the Bloomberg Aggregate Index

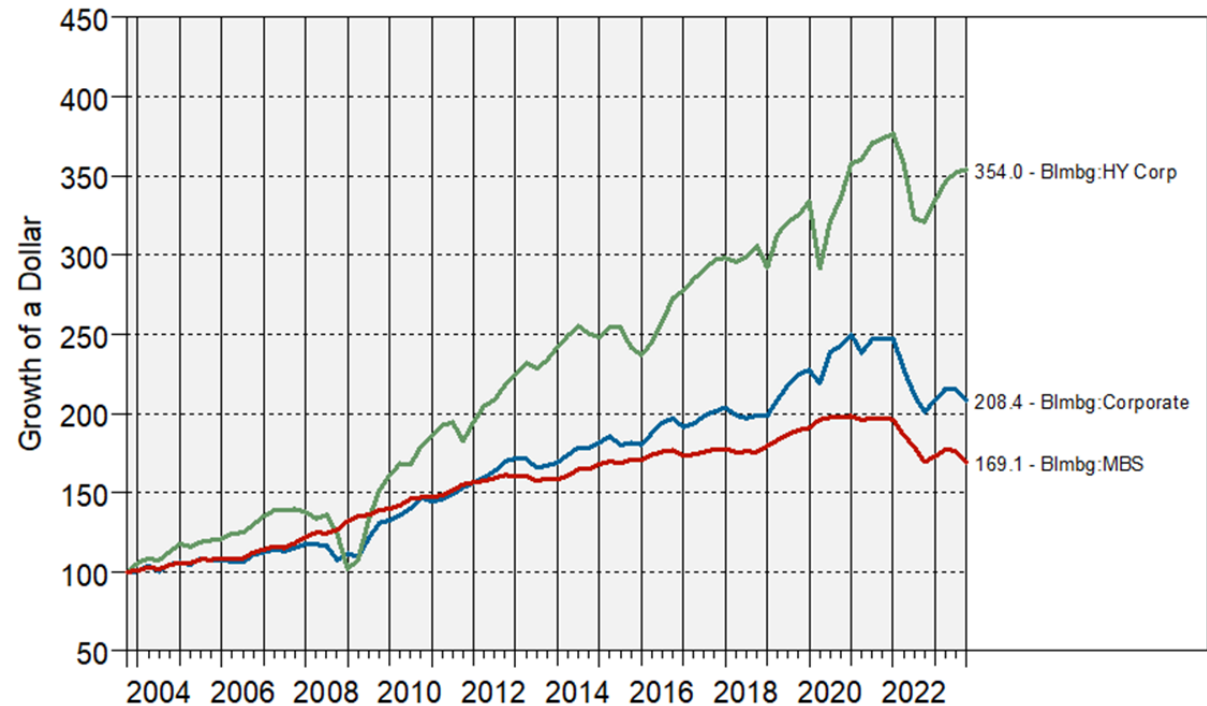
Fiscal Year	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
APERS	0.82%	-11.39%	4.32%	6.81%	8.57%	0.79%	3.04%	5.06%	1.32%	7.03%	3.51%
Bloomberg Agg	-0.94%	-10.29%	0.33%	8.74%	7.87%	-0.40%	-0.31%	5.08%	1.60%	5.25%	1.07%
	1.76%	-1.10%	3.99%	-1.93%	0.70%	1.19%	3.35%	-0.02%	-0.28%	1.78%	2.44%
Fed Funds	5.25%	1.75%	0.25%	0.25%	2.50%	2.00%	1.25%	0.50%	0.25%	0.25%	0.25%
		aggressive hike									
Calendar Year	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
APERS	7.87%	-13.79%	3.00%	4.70%	10.46%	-0.26%	5.73%	5.60%	-0.80%	6.33%	0.17%
Bloomberg Agg	5.53%	-13.01%	-1.54%	1.29%	8.72%	0.01%	3.54%	3.90%	0.31%	5.66%	-0.82%
	2.34%	-0.78%	4.54%	3.41%	1.74%	-0.27%	2.19%	1.70%	-1.11%	0.67%	0.99%
Fed Funds	5.50%	4.50%	0.25%	0.25%	1.75%	2.50%	1.50%	0.75%	0.50%	0.25%	0.25%
		aggressive hike									

High Yield Historical Performance

Returns
 for Periods Ended September 30, 2023

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years	Last 20 Years
Blmbg:Corporate	(3.09)	3.65	(4.93)	0.93	2.23	4.51	3.74
Blmbg:HY Corp	0.46	10.28	1.76	2.96	4.24	7.25	6.53
Blmbg:MBS	(4.05)	(0.17)	(5.09)	(0.77)	0.61	1.95	2.66

**Growth of \$1
 For a \$100 Mandate
 For 20 years ending Sept. 30, 2023**



APERS Sept. 09, 2023 Board Meeting

Organizational Developments

2nd Quarter 2023

MacKay Shields – Core Plus Fixed Income

On May 9, 2023, Mackay Shields announced that Stephen Cianci, Senior Managing Director and Co-Head of Global Fixed Income, will be leaving the firm and remain as an advisor until June 30th. Cianci joined the firm in 2018, roughly a year before Dan Roberts, the former Head of Global Fixed Income, retired from the firm. This announcement comes within a year of former President Janelle Woodward's departure.

Effective immediately, the Global Fixed Income Team will be co-led by Neil Moriarty and Michael DePalma. DePalma joined MacKay Shields in 2019 and most recently served as Managing Director and Co-Head of Macro and Quantitative Solutions. He was previously involved in the management of credit strategies at Phase Capital and multi-sector, global, and credit strategies at AllianceBernstein. Moriarty joined the firm in January of 2018 alongside Cianci. Additionally, Thomas Musmanno will join the Global Fixed Income portfolio management team. Musmanno previously worked at Blackrock for more than twenty years and had responsibility for their \$75 billion Short Duration business, and he will also take on a newly created role of Chief Operating Officer of MacKay's non-Municipal fixed income business.

In the past, the team adhered to a top-down approach shaped by macroeconomic factors. Cianci was a strong voice in favor of a more bottom-up approach which conflicted with other team members. Callan will closely monitor to observe whether Moriarty and DePalma will implement the top-down centric investment style that MacKay used under Dan Roberts.

The frequency of recent departures raises the level of concern and puts the team and strategies it oversees under review. The recent level of turnover amongst firm leadership, portfolio management, and credit research professionals is unexpected from a firm that has historically not experienced a high level of personnel attrition.

Historical - Growth vs Value

Fiscal Year	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
APERS Dom Equity	15.24%	-14.22%	43.65%	6.06%	8.12%	16.27%	17.52%	-0.38%	7.25%	24.48%	20.99%
RU3000 Index	18.95%	-13.87%	44.16%	6.53%	8.98%	14.78%	18.51%	2.14%	7.29%	25.01%	22.09%
S&P 500	19.59%	-10.62%	40.79%	7.51%	10.42%	14.37%	17.90%	3.99%	7.42%	24.61%	20.60%
RU1000 Growth	27.11%	-18.77%	42.50%	23.28%	11.56%	22.51%	20.42%	3.02%	10.56%	26.92%	17.07%
RU1000 Value	11.54%	-6.82%	43.68%	-8.84%	8.46%	6.77%	15.53%	2.86%	4.13%	23.81%	25.32%
	15.57%	-11.95%	-1.18%	32.12%	3.10%	15.74%	4.89%	0.16%	6.43%	3.11%	-8.25%
RU2000 Growth	18.53%	-33.43%	51.36%	3.48%	-0.49%	21.86%	24.42%	-10.75%	12.34%	24.73%	23.67%
RU2000 Value	6.01%	-16.28%	73.28%	-17.48%	-6.24%	13.10%	24.86%	-2.58%	0.78%	22.54%	24.76%
	12.52%	-17.15%	-21.92%	20.96%	5.75%	8.76%	-0.44%	-8.17%	11.56%	2.19%	-1.09%

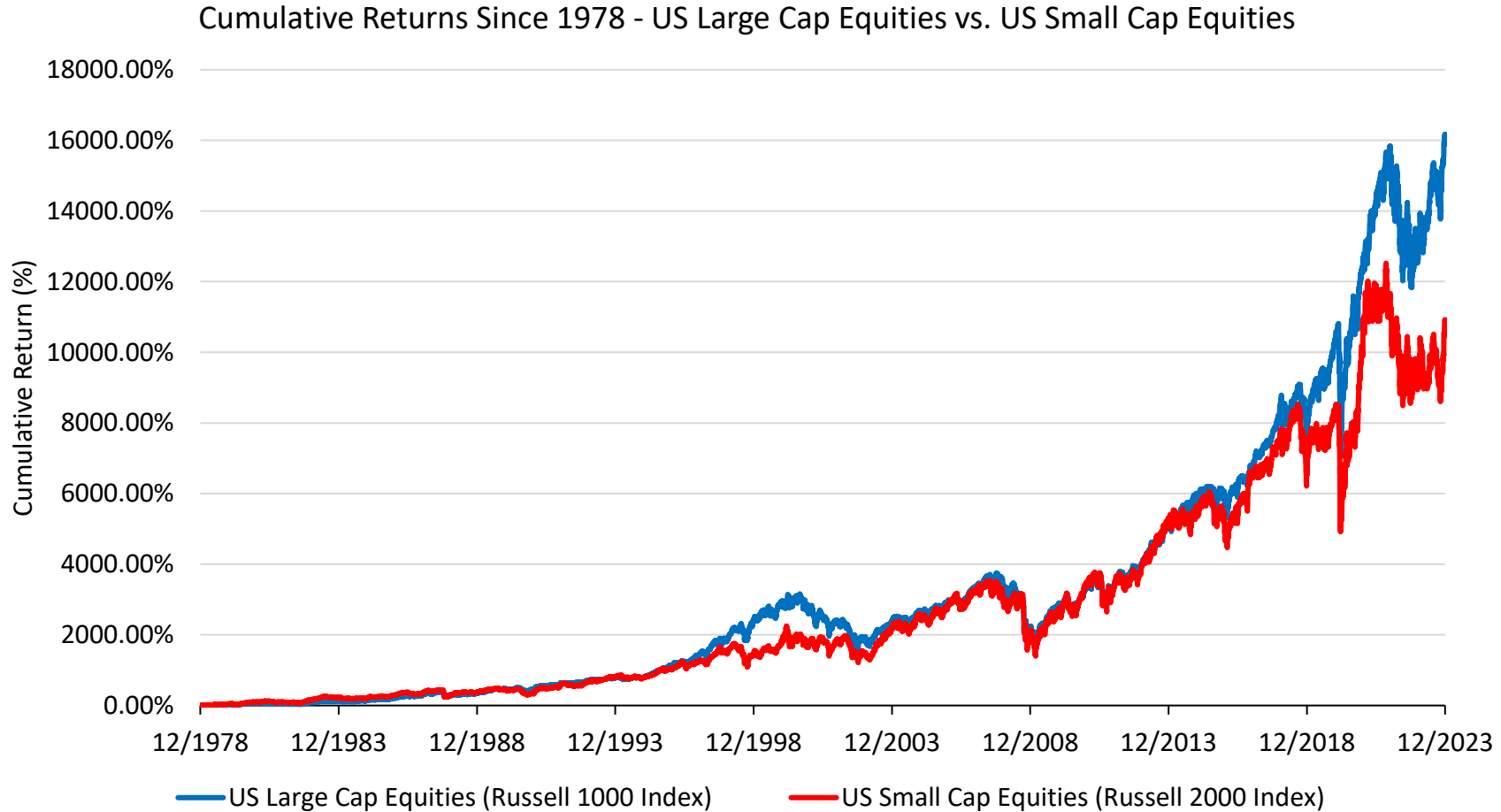
- In 2022 and 2021, Value outperformed Growth because the markets experienced the most aggressive rate hike cycle in the history of the Federal Reserve.



Small Cap performance detractor

Fund	Annualized Allocation Impact on 5-Year APERS Domestic Equity Relative Returns (Ending 6/30/2023)
Mellon S&P 500	0.06%
CastleArk	-0.04%
Horrell	-0.01%
Intech	-0.13%
Lazard	0.02%
LSV	-0.44%
Stephens	-0.48%
Wellington	0.72%
Total	-0.30%

Historical – Small Cap vs Large Cap



Small Cap & Large Cap Returns & Risk

Horizon ending 12/31/2023	US Large Cap Equities Annualized Return (%)	US Small Cap Equities Annualized Return (%)	US Large Cap Equities Annualized Volatility (%)	US Small Cap Equities Annualized Volatility (%)
Last 1 Year	26.53%	16.93%	13.39%	20.03%
Last 3 Years	8.97%	2.22%	17.98%	23.60%
Last 5 Years	15.52%	9.97%	21.54%	27.30%
Last 10 Years	11.80%	7.16%	17.86%	22.51%
Last 20 Years	9.78%	8.11%	19.22%	24.53%
Last 30 Years	10.18%	8.56%	18.83%	22.73%
Last 40 Years	11.29%	9.14%	17.95%	20.67%
Last 45 Years	11.97%	10.97%	17.58%	20.00%

- END -
