



Board of Retirement Regular Meeting

Sacramento County Employees' Retirement System

Agenda Item 14

MEETING DATE: November 7, 2017

SUBJECT: Implementation of Strategic Asset Allocation for Fixed Income Portfolio

SUBMITTED FOR: ___ Consent X Deliberation and Action ___ Receive and File

RECOMMENDATION

Staff recommends that the Board:

- 1) Use the existing core fixed income allocation as the source for the dedicated U.S. Treasury allocation; and
- 2) Use an existing SCERS fixed income manager to implement the newly created U.S. Treasury allocation using a broad market U.S. Government index.
- 3) Adopt Resolution 2017-10 to effect the Board's approval of the recommendations.

PURPOSE

To conform SCERS' Fixed Income portfolio to the strategic asset allocation adopted by the Board in January 2017 by reducing SCERS' core/core plus exposure and adding a dedicated U.S. Treasury portfolio.

BACKGROUND

The Board approved a revised strategic asset allocation for SCERS in January 2017. Fixed Income was a dedicated asset class with a 20% target in SCERS' prior asset allocation. While the Fixed Income portfolio still has a 20% target allocation in aggregate, the new strategic asset allocation assigns a 2% allocation to Public Credit to SCERS' Growth asset category, with the remaining 18% traditional fixed income assigned to the Diversifying asset category.

SCERS' New Target Policy Allocation			
Asset Category/Class	Prior Policy Allocation	New Policy Allocation	Changes
Growth	63.0%	59.0%	-4.0%
Public Equities	45.0%	41.0%	-4.0%
Private Equity	10.0%	9.0%	-1.0%
Public Credit	2.0%	2.0%	0.0%
Private Credit	0.0%	4.0%	4.0%
Growth Oriented Absolute Return	6.0%	3.0%	-3.0%
Diversifying	22.0%	25.0%	3.0%
Core/Core Plus Fixed Income	15.0%	10.0%	-5.0%
U.S. Treasury	0.0%	5.0%	5.0%
Global Fixed Income	3.0%	3.0%	0.0%
Diversifying Absolute Return	4.0%	7.0%	3.0%
Real Return	15.0%	16.0%	1.0%
Real Estate	7.0%	7.0%	0.0%
Private Real Assets	6.0%	7.0%	1.0%
Commodities	2.0%	2.0%	0.0%
Opportunities	0.0%	0.0%	0.0%

Separating Public Credit from traditional fixed income recognizes that different components of the bond markets have different risk/return profiles and serve different roles in the portfolio. Some publicly traded fixed income securities (e.g., lower-quality credits, bank loans) typically do well during a more favorable economic environment, and have higher correlations and betas to equity markets. Thus the allocation of these assets to SCERS' Growth asset category. Traditional fixed income strategies have low to negative correlation to equity markets and serve as a diversifier to the more growth oriented segments of SCERS' portfolio.

The public credit allocation is comprised of one allocation to one manager (Brigade Capital Management)

that invests in mostly below investment grade, high yield and bank loan publicly traded securities. The traditional fixed

SCERS Fixed Income Exposures (as of September 30, 2017):

Strategy	Asset Category/ Asset Class	Investment Manager	Allocation Target (% of total portfolio)	Policy Index Benchmark
Treasury	Diversifying / Public Fixed Income	TBD	5.0%	Bloomberg Barclays United States Treasury Index
core fixed income	Diversifying / Public Fixed Income	Neuberger Berman	5.0% *	Bloomberg Barclays Aggregate Index
core plus fixed income	Diversifying / Public Fixed Income	Prudential	5.0% *	Bloomberg Barclays Aggregate Index
core plus fixed income	Diversifying / Public Fixed Income	ICW	5.0% *	Bloomberg Barclays Aggregate Index
global fixed income	Diversifying / Public Fixed Income	Brandywine	3.0%	80% Citi WGBI/20% JPM GBI-EM Global
high yield/bank loans	Growth / Public Credit	Brigade Capital Management	2.0%	50% BofA High Yield/50% CS Leveraged Loan

* One of the core/core plus strategies will be used as the source of capital for the Treasury allocation

income exposures are more diversifying in nature than the public credit mandate (Brigade), with an emphasis on capital preservation. This segment is comprised of SCERS' allocations to: (1) Core fixed income (Neuberger Berman) and /core plus fixed income (Prudential and TCW); (2) U.S. Treasuries (new allocation); and (3) Global fixed income (Brandywine).

The primary change within the traditional fixed income segment as a result of the new strategic asset allocation was the addition of a 5% U.S. Treasury allocation and a corresponding decrease in the core/core plus fixed income allocation from 15% to 10%. U.S Treasuries are considered 'anchor to safety' assets, and one of the most diversifying components of a portfolio, generally generating positive returns when equity returns are negative. Historically when equity assets have been down significantly, investors have tended to gravitate toward safe haven assets such as government bonds, and particularly U.S. Treasuries. Another advantage of having Treasury exposure is that it is one of the most liquid segments of the markets, providing a source of liquidity for SCERS' overall portfolio.

A consideration in adding the dedicated Treasury exposure is that U.S. Treasury yields have been near historic lows due to global central bank accommodative monetary policies and the large amounts of quantitative easing that have flooded the markets. As a result, in the current environment U.S. Treasuries are sensitive to interest rate risk. In a potentially rising interest rate environment, Treasuries are susceptible to negative returns, even if they still serve as an anchor to safety in a dislocated market environment. It should be noted that Treasury rates have increased since their lows of ~1.5% in 2016, and currently sit at ~2.4%, so, the current entry point to implement the U.S. Treasury allocation is better. As noted below, Neuberger Berman estimates the fair value of interest rates over the next 12 to 18 months between 2.7% and 3.0%.

Outside of separating public credit from the diversifying/traditional fixed income exposures and the addition of the dedicated Treasury allocation, there were no other changes to the overall Fixed Income portfolio. The benchmarks for each segment of the portfolio remain the same as within the prior asset allocation, other than the addition of the Bloomberg Barclays U.S. Treasury Index as the policy index benchmark for the dedicated Treasury allocation. All benchmarks were approved within SCERS' Master Investment Policy Statement early in 2017, and are shown in the table above.

RECOMMENDED SOURCE OF FUNDING FOR U.S. TREASURY PORTFOLIO

Staff and Verus recommend that SCERS' existing core fixed income portfolio, which is managed by Neuberger Berman, be used as the source of capital for the dedicated U.S. Treasury allocation.

Neuberger Berman currently manages a core fixed income strategy for SCERS that is ~5% of SCERS' assets and is benchmarked to the Bloomberg Barclays Aggregate Index, with near equal weights between Treasuries, mortgage backed securities and investment grade credit. The Prudential and TCW core plus fixed income managers and mandates, which were also considered for the dedicated U.S. Treasury allocation, are less restrictive than the Neuberger Berman core mandate, with a greater number of levers to pull to manage a fixed income cycle. This includes the ability to move up and down the risk spectrum across credit, structured credit, non-U.S. bonds, mortgages and Treasuries.

Within the table to the right are the current allocations for each of SCERS' core/core plus fixed income managers within the primary segments of the fixed income markets (as of September 30, 2017). Neuberger Berman has the largest allocation to Treasuries, with TCW a close second, and Prudential trails with a small allocation. It is interesting to note that TCW has a lower allocation to credit than Neuberger Berman, as TCW believes there are more risks around central bank policy and the credit cycle going forward, and has positioned its strategy away from credit and toward government securities and variations of structured credit. You can perhaps make the case that the TCW portfolio is currently more conservatively positioned than the Neuberger Berman

	Treasury	Mortgage	Credit	Other*
Neuberger Berman	26.0%	23.5%	26.4%	24.1%
Prudential	3.4%	4.0%	40.3%	52.3%
TCW	19.1%	34.4%	15.1%	31.4%

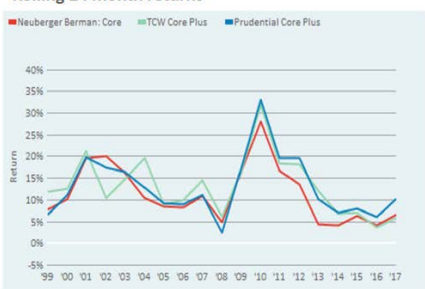
* Other includes High Yield, EM Debt, Municipals, structured products, and cash

portfolio. Prudential tends to run a benchmark agnostic portfolio, and is currently positioned heavier in high quality structured product, with lower allocations to government bonds. Prudential can quickly adjust exposures during a cycle, but will generally have a lighter allocation to Treasuries.

Staff and Verus believe that a barbell approach for the aggregated Treasury and core/core plus fixed income exposure is most beneficial to SCERS, and both segments serve as diversifying complements to one another. The dedicated Treasury allocation on one end of the barbell, provides a meaningful ‘anchor to safety’ and liquidity for SCERS’ portfolio during a market drawdown period, while the core plus mandates on the other end of the barbell provide a good combination of broad portfolio diversification with the potential for alpha generation over the Bloomberg Barclays Aggregate Index throughout a fixed income cycle.

The greater flexibility of the core plus mandates adds alpha potential to SCERS’ fixed income portfolio, but also adds diversification to manage a full cycle. This is shown in the multi-period returns of SCERS’ managers, as shown below, where the Prudential and TCW strategies have outperformed the Neuberger Berman strategy and the Bloomberg Barclays Aggregate Index over the 3-, 5- and 10-Year periods.

Rolling 24 month returns



Gross Returns	5 Years	7 Years	10 Years
Neuberger Berman: Core	2.7%	3.8%	5.3%
TCW Core Plus	3.8%	4.8%	6.3%
Prudential Core Plus	4.5%	5.7%	6.7%
Bloomberg Aggregate Index	2.2%	3.2%	4.5%

During the period of the Global Financial Crisis (‘GFC’), Neuberger Berman had the lowest drawdown during the trough of the crisis in 2008, but lagged Prudential and TCW during the recovery in 2009. However, keep in mind that all three strategies provided meaningful diversification to SCERS’ overall portfolio in 2008, as the core plus mandates were down low single digits, while the Neuberger Berman strategy was up slightly. It should also be noted that during this period, SCERS did not have Prudential as a manager (Neuberger Berman and TCW were managers). Bradford & Marzec was SCERS’ second core plus fixed income manager during that period, and actually generated positive returns in 2008. This manager was terminated and replaced with Prudential in 2014 due to significant organizational changes at the firm.

Another reason to use the current Neuberger Berman core fixed income mandate as the source of capital for the dedicated Treasury mandate, is that both strategies have a similar interest risk profile. The duration of the Neuberger Berman core fixed income portfolio is 6.0 years, which

Strategy	Duration
Neuberger Berman Core Fixed Income	6.0%
Bloomberg Barclays U.S. Treasury Index	6.2%
Bloomberg Barclays 1-5 year Treasury Index	2.8%

Strategy	Risk Type	Risk
Neuberger Berman Core Fixed Income	Interest Rate	3.4%
	Credit	1.3%
Bloomberg Barclays U.S. Treasury Index	Interest Rate	3.5%

is similar to that of the Bloomberg Barclays U.S. Treasury Index (duration of 6.2 years). This means that if interest rates go up, the core fixed income portfolio and the Treasury portfolio would be expected to underperform in similar ways, absent a change to credit spreads. The Neuberger Berman core mandate also has exposure to credit risk.

IMPLEMENTATION CONSIDERATIONS

Staff and Verus recommend that the Board approve the following implementation plan for transitioning and managing the dedicated Treasury allocation. This includes: (1) Retaining Neuberger Berman to manage the dedicated Treasury allocation by converting the Neuberger Berman core fixed income portfolio into a dedicated Treasury portfolio; and (2) using a broad market U.S. Government index (Implementation Option 1 described in the attached presentation) to manage the Treasury allocation.

Related to the recommendation to retain Neuberger Berman, Verus and Staff identified several fixed income managers with capabilities to manage a dedicated Treasury allocation. Verus had conversations with three managers, and subsequent to these discussions, in conversation with Staff, concluded that these managers were not as good a fit to manage SCERS' Treasury allocation. The three managers charged higher fees and did not identify any sources of alpha creation different than what Neuberger Berman proposed. Neuberger Berman has been a trusted partner of SCERS for many years, and has historically done a good job of managing SCERS' core fixed income allocation, which has an approximate one-third allocation to Treasuries. The management fee that Neuberger Berman has proposed to manage a dedicated Treasury allocation is a reasonable 5 basis points for implementation Option 1 and 6 basis points for implementation Option 2, which is lower than or similar to the current effective management fee of ~6 basis points that Neuberger Berman charges to manage SCERS' current core fixed income mandate.

Related to the recommendation to use a broad market U.S. Government index (Implementation Option 1) to manage the Treasury allocation, Staff and Verus have had multiple discussions with Neuberger Berman to identify the most appropriate method to implement and manage a dedicated Treasury allocation. Neuberger Berman proposed both a broad U.S. Government Index (Implementation Option 1) and a blend of short and longer duration indices (Implementation Option 2) for managing the Treasury portfolio. Both options would fully fund the Treasury allocation from day one at its target allocation of 5%, but would take different approaches to managing duration and Treasury benchmarks.

Option 1 manages the allocation according to the U.S. Government Index, which is SCERS' policy index benchmark. Under this option, SCERS' dedicated Treasury allocation would be fully funded from day one to match the duration of this index, which currently stands at 6.2 years. This would remain a static allocation, and represents a simple but effective approach to maintaining dedicated Treasury exposure.

Option 2 is a more multifaceted approach, with the objective to better manage interest rate risk across a cycle by investing in a blend of mostly Treasury indices at predetermined interest rate levels based on Neuberger Berman’s estimate of fair market value for interest rates, which is currently forecasted at 2.7% to 3.0% over the next 12 to 18 months. This option would also fully fund at day one, but the duration would be actively managed with ranges from 4 to 9 years.

Under Implementation Option 2, when interest rates are below fair value, which represents the current environment, Neuberger Berman would maintain short duration, by holding a blend of U.S. Government Intermediate (1-10Y) bonds and U.S. Mortgage Backed Securities, the combination of which equates to a 4 year duration.

The U.S. Mortgage Backed Securities provide greater yield and are less subject to negative convexity (mortgage prepayments) in a rising interest rate environment. When interest rates get to fair value, Neuberger Berman would then extend duration and rotate the portfolio to hold the U.S. Government (Full Maturity) Index, which equates to a 6 year duration (same as the fixed duration for Option 1). When interest rates move above fair value, then Neuberger Berman would extend duration further and rotate the portfolio to hold a blend of the U.S. Government Intermediate (1-10Y) Index and the U.S. Government Long (10Y+) Index, which equates to a 9 year duration. In contrast, when interest rates move the opposite direction and decrease toward fair value and below, Neuberger Berman would take down duration and rotate the portfolio accordingly.

U.S. Government Solution Proposal			
Dynamic Duration Strategic Benchmark Construction			
1	When rates are below fair value, shorten duration and include mortgages	10 YEAR YIELD BELOW FAIR VALUE	
		Constituents	Weight
		U.S. Government: Intermediate (1-10Y)	90%
		U.S. Mortgage Backed Securities	10%
			Duration (yrs)
			4
2	When rates are close to fair value move to the full U.S. Government Index	10 YEAR YIELD CLOSE TO FAIR VALUE	
		Constituents	Weight
		U.S. Government: Full Maturity	100%
		U.S. Mortgage Backed Securities	0%
			Duration (yrs)
			6
3	When rates are above fair value, extend duration	10 YEAR YIELD ABOVE FAIR VALUE	
		Constituents	Weight
		U.S. Government: Intermediate (1-10Y)	60%
		U.S. Government: Long (10Y+)	40%
			Duration (yrs)
			9

A reason that Option 2 would be managed against the multiple benchmarks described above is to stay within a lower tracking error range, which is generally optimal for a Treasury allocation. However, this would require SCERS to use multiple benchmarks to evaluate the performance of this strategy, which adds an additional layer of complexity.

In comparing the two options, Staff and Verus believe that Option 1 is less complex and offers better downside protection for SCERS’ total portfolio, which is a key objective of the Diversifying asset category. Neuberger Berman ran an interest rate scenario analysis for SCERS based on two 100 basis point (1%) moves in interest rates that have occurred in either direction over the past few years. While Option 1 was

Interest Rate Scenario

Index	+100 bps			-100 bps		
	Return for Period	Duration (7/1/2016)	Duration (1/31/2017)	Return for Period	Duration (11/9/2015)	Duration (7/8/2016)
	10Y US Treasury Yield (%)			10Y US Treasury Yield (%)		
U.S. Government	-3.9%	6.3	5.9	6.5%	5.7	6.4
Intermediate (1-10Y)	-2.3%	3.9	3.9	4.0%	3.8	3.9
Long (10Y+)	-12.3%	18.0	17.1	21.3%	16.7	18.1
U.S. Mortgage Backed Securities (MBS)	-1.5%	2.4	4.8	3.7%	4.7	2.2
90% Intermediate / 10% MBS	-2.2%	3.8	4.0	4.0%	3.9	3.8

Source: Neuberger Berman

negatively affected to a greater degree in a rising interest rate environment during the 2016-2017 period (see orange highlighted cell of -3.9% in the table), it generated greater returns in a falling interest rate environment during the 2015-2016 period (see orange highlighted cell of 6.5% in the table). It demonstrates an asymmetric return profile in which the potential positive gains in a declining interest rate environment should be greater than the potential negative gains in a rising interest rate environment for a similar movement in yields. This is due to the fact that SCERS would still be earning a yield, even if bond prices are decreasing in a rising interest rate environment, which offsets the losses. Option 2 better protects against a rising interest rate environment compared to Option 1; however it also limits gains in a declining interest rate environment (see blue highlighted cells in the table), which is a key objective of the mandate.

As part of the overall fixed income analysis, Staff and Verus also evaluated the dedicated public credit allocation managed by Brigade, and the global fixed income allocation managed by Brandywine. No modifications are being recommended for either mandate. The Brigade strategy provides SCERS with differentiated exposure to credit, primarily through high yield and bank loan exposures, and fits well within SCERS' Growth asset category. The Brandywine strategy provides SCERS with a good combination of global sovereign bond (including U.S. Treasuries) and currency exposure, as well as smaller amounts of credit that in combination serves as a good diversifier to SCERS' total portfolio, and fits well within SCERS' Diversifying asset category.

NEXT STEPS

As mentioned earlier, Staff and Verus recommend that the core fixed income allocation, which is managed by Neuberger Berman, be the source of capital for the dedicated U.S. Treasury allocation, and also recommend retaining Neuberger Berman to implement and manage the dedicated Treasury allocation. If the retention of Neuberger Berman is approved at the November Board meeting, Staff will: (1) Cease SCERS' investment management agreement with Neuberger Berman for the core fixed income mandate; (2) Execute a new investment management agreement with Neuberger Berman for the Treasury mandate; and (3) Work with Neuberger Berman to implement an orderly transition of the existing assets in the core fixed income mandate to a dedicated Treasury mandate (no transition manager will be utilized).

However, if the Board prefers to have Neuberger Berman present to the Board prior to approval, which is consistent with the implementation protocol for traditional/liquid asset classes, then Neuberger Berman could be asked to present to SCERS' Board at the December meeting, subsequent to which the Board could consider taking action on the recommendation.

The use of Implementation Option 1 for the management of the Treasury allocation is also a recommendation by Staff and Verus. One consideration that the Board identified when approving a dedicated Treasury allocation to SCERS' portfolio is interest rate risk, where Treasuries are subject to losses in a rising interest rate environment. This is addressed by Implementation Option 2 at the risk of limiting upside gains in a declining interest rate environment. If the Board believes that Option 2 offers a better trade-off in this regard than

Option 1, then Staff and Verus would certainly be comfortable with Neuberger Berman implementing this approach as well.

ATTACHMENTS

Implementation of the Fixed Income Portfolio within SCERS' New Strategic Asset Allocation Resolution SCERS 2017-10

Prepared by:

Reviewed by:

/s/

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Chief Investment Officer

/s/

Annette St. Urbain
Interim Chief Executive Officer



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SUCCESS**



NOVEMBER 2017

Implementation of the Fixed Income Portfolio within SCERS' New Strategic Asset Allocation

Sacramento County Employees' Retirement System

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Overview

Structure Overview

- As part of the ALM study SCERS adopted new targets within Fixed Income, 5% of the U.S. Fixed income strategy was carved out for a dedicated Treasury allocation

SCERS' New Target Policy Allocation			
Asset Category/Class	Prior Policy Allocation	New Policy Allocation	Changes
Growth	63.0%	59.0%	-4.0%
Public Equities	45.0%	41.0%	-4.0%
Private Equity	10.0%	9.0%	-1.0%
Public Credit	2.0%	2.0%	0.0%
Private Credit	0.0%	4.0%	4.0%
Growth Oriented Absolute Return	6.0%	3.0%	-3.0%
Diversifying	22.0%	25.0%	3.0%
Core/Core Plus Fixed Income	15.0%	10.0%	-5.0%
U.S. Treasury	0.0%	5.0%	5.0%
Global Fixed Income	3.0%	3.0%	0.0%
Diversifying Absolute Return	4.0%	7.0%	3.0%
Real Return	15.0%	16.0%	1.0%
Real Estate	7.0%	7.0%	0.0%
Private Real Assets	6.0%	7.0%	1.0%
Commodities	2.0%	2.0%	0.0%
Opportunities	0.0%	0.0%	0.0%

Structure Overview

—For the fixed income structure, Verus and Staff have reviewed the following:

- The roles of fixed income managers
- Portfolio risks within fixed income
- Funding for the Treasury allocation

Treasury Allocation Objective

- Diversifying correlation to risk assets (downside protection)
- Consideration of interest rate changes (interest rate rises)

Plan structure

Breaking out Risks

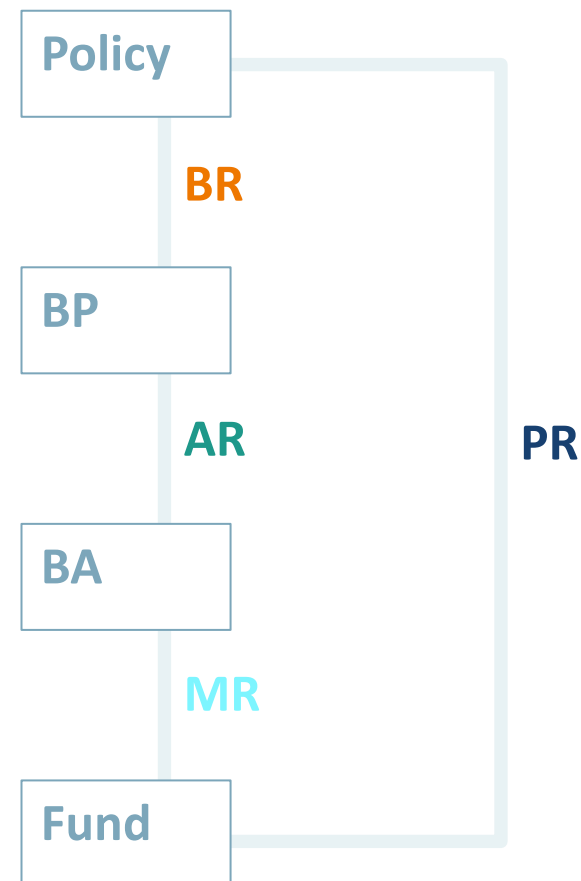
$$BR + AR + MR = PR$$

— **Policy Risk (PR)** = Total **Fund** tracking error to **Policy**.

— **Benchmark Risk (BR)** = **BP** tracking error to **Policy**:

— **Allocation Risk (AR)** = **BA** tracking error to **BP**:

— **Manager Risk (MR)** = **Fund** tracking error to **BA**:



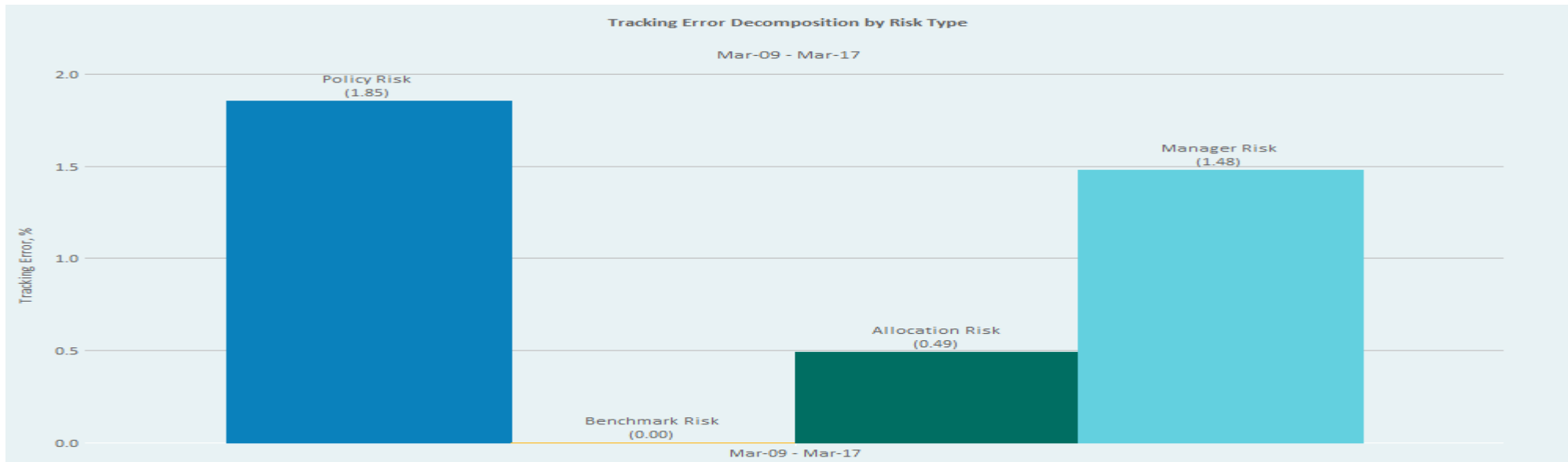
Portfolio Definitions

- **Policy:** asset allocation **policy**
- “**Benchmark Policy**” (**BP**): mandate **benchmarks** using **policy** weights
- “**Benchmark Actual**” (**BA**): mandate **benchmarks** using **actual** weights
- **Fund:** managers using **actual** weights

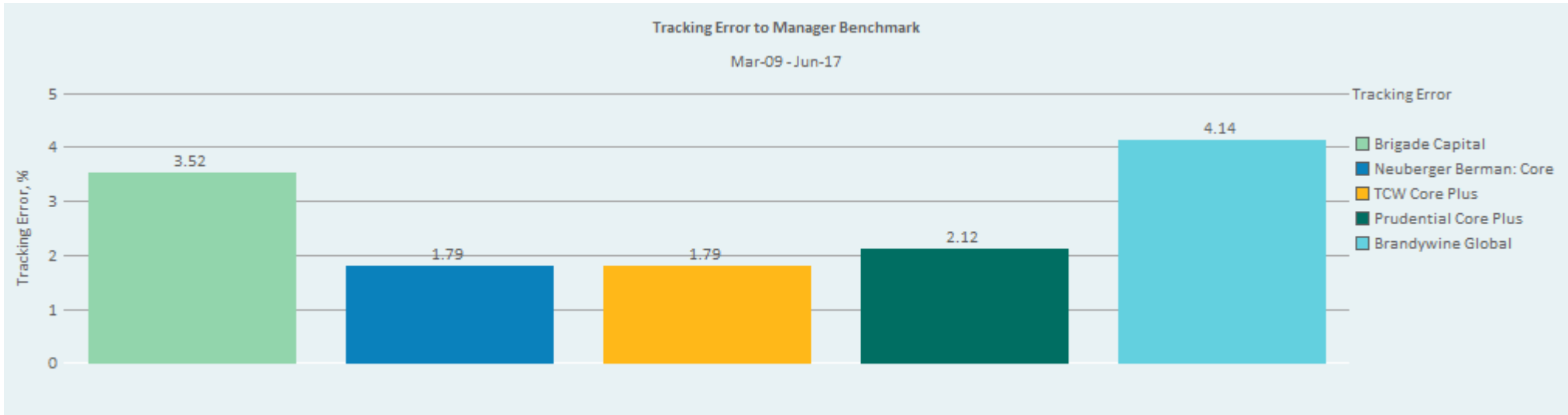
Strategy	Benchmark	Manager	Policy	BP	BA	Fund
Core/Core Plus	BB US Aggregate		50.0%	50.0%	74.6%	
		Prudential				27.6%
		TCW				24.3%
		Neuberger Berman				22.7%
Treasury	BB US Treasury		25.0%	25.0%		
Global	80% WGBI ex US/20% JPM		15.0%	15.0%	14.4%	
	GBI-EM	Brandywine				14.4%
Public Credit	50% BoA HY/ 50% CS		10.0%	10.0%	11.0%	
	Leveraged Loan	Brigade				11.0%

Policy Risk (PR)

- Total **Fund** tracking error to **Policy**
- The sum of **BR**, **AR**, and **MR** equals **PR**
- The ability to understand where **PR** comes from is extremely insightful
- The ideal risk profile is that **MR** dominates **PR**. However, in this case **AR** is material:



Manager Tracking Errors and Correlations



Excess Returns Correlation	Brigade	Neuberger Berman	TCW	Prudential	Brandywine
Brigade	1.00	-0.50	-0.24	-0.22	-0.09
Neuberger Berman	-0.50	1.00	0.79	0.64	0.18
TCW	-0.24	0.79	1.00	0.56	0.19
Prudential	-0.22	0.64	0.56	1.00	0.07
Brandywine	-0.09	0.18	0.19	0.07	1.00

Treasury Allocation

- We recommend taking the treasury allocation from the Neuberger Berman Core Fixed Income portfolio
 - The core/core plus manager fixed income allocations are below
- Neuberger has the highest Treasury allocation
 - Core plus managers have lower allocation - TCW tends to have a more conservative investment approach relative to Prudential, which is more benchmark agnostic
- Verus and Staff favor a barbell approach
 - ‘Anchor to safety’ Treasury allocation on one end
 - Diversifying and alpha generating core plus allocation on the other end

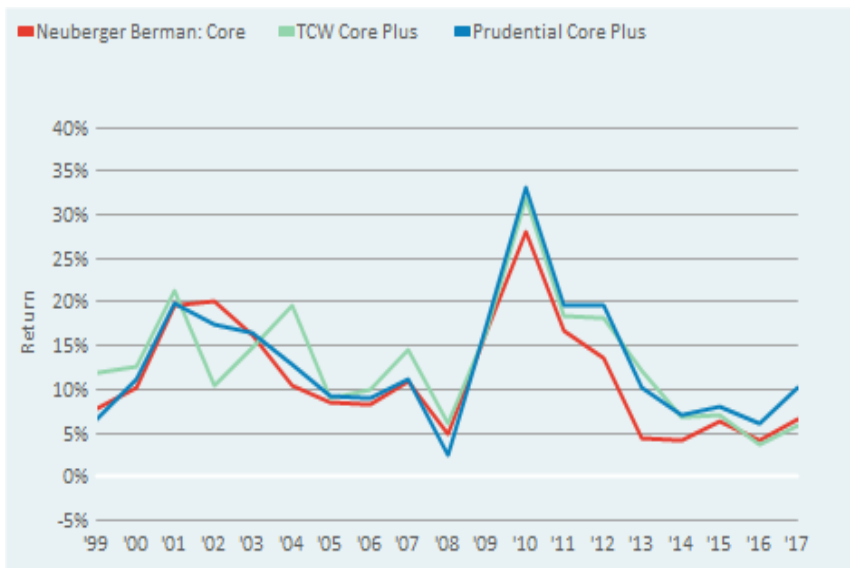
	Treasury	Mortgage	Credit	Other*
Neuberger Berman	26.0%	23.5%	26.4%	24.1%
Prudential	3.4%	4.0%	40.3%	52.3%
TCW	19.1%	34.4%	15.1%	31.4%

* Other includes High Yield, EM Debt, Municipals, structured products, and cash

Performance Comparison

- Prudential and TCW are less restricted core-plus mandates, which adds alpha potential
- Rolling returns indicate a fairly close range of outcomes across the three portfolios. Neuberger had the lowest drawdown in 2008 but trailed considerably in the recovery of 2009

Rolling 24 month returns



Gross Returns	5 Years	7 Years	10 Years
Neuberger Berman: Core	2.7%	3.8%	5.3%
TCW Core Plus	3.8%	4.8%	6.3%
Prudential Core Plus	4.5%	5.7%	6.7%
Bloomberg Aggregate Index	2.2%	3.2%	4.5%

* Other includes High Yield, EM Debt, Municipals, structured products, and cash

Barra Risk Decomposition

- Current Neuberger Berman Core Bond risk profile has the same interest rate risk as the Bloomberg Barclays U.S. Treasury index
- If interest rates go up, the core portfolio and the treasury portfolio will underperform in similar ways, absent a change to credit spreads

Strategy	Risk Type	Risk
Neuberger Berman Core Fixed Income	Interest Rate	3.4%
	Credit	1.3%
Bloomberg Barclays U.S. Treasury Index	Interest Rate	3.5%

- Interest rate risk will be lower with a lower duration index

Strategy	Duration
Neuberger Berman Core Fixed Income	6.0%
Bloomberg Barclays U.S. Treasury Index	6.2%
Bloomberg Barclays 1-5 year Treasury Index	2.8%

Structure Conclusions

The **Policy Risk** is approximately 1.9%

Three unique risk sources contribute to Policy Risk:

- Benchmark Risk is 0%
- Allocation risk is .49% coming from the unfunded Treasury allocation
- Manager Risk is 1.48% which is expected due to active management vs policy benchmark

Treasury Implementation Considerations

Treasury Manager Considerations

- Verus and Staff recommend retaining Neuberger Berman, and converting the Neuberger Berman Core Fixed Income account to a Treasury portfolio
- Verus interviewed 3 other fixed income managers to compare treasury strategies. Neuberger Berman had similar potential alpha sources, and one of the lowest fees
- Neuberger Berman has been a trusted partner of SCERS for many years, and has historically done a good job of managing SCERS' core fixed income allocation, which has an approximate one-third allocation to Treasuries

Neuberger Berger Implementation Options

Option 1 – Use the broad market US Government index with a duration of 6.2

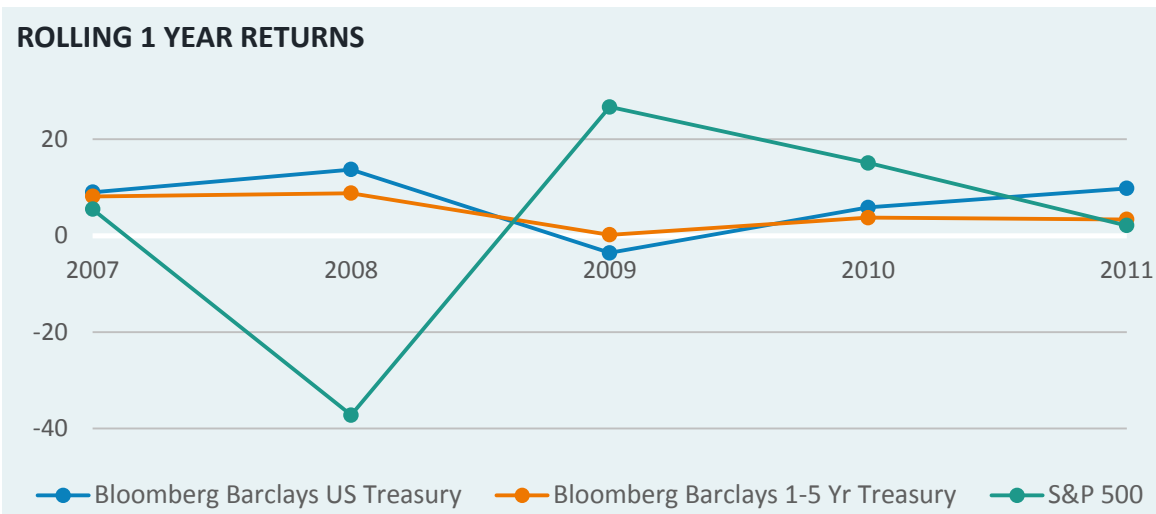
- Fully fund the 5.0% Treasury allocation using Policy Benchmark

Option 2 – Use a blend of Treasury Indices

1. Start with a blend of 90% 1-10 year U.S. Government index
10% Agency MBS at current rates levels
2. Transition to Policy Benchmark U.S. Government Index when rates reach fair value
3. Transition to 60% Government Intermediate/ 40% U.S. Government Long when rates are above fair value

Option 1

- Does not rely on short term interest rate insight
- If rates increase 1% option 1 should lose 3.9% which would take less than 2 years to recoup*
- This option provides the strongest hedge against risk assets falling due to negative correlation (see chart below)



	Bloomberg Barclays 1-5 year Treasury	Bloomberg Barclays U.S. Treasury	S&P 500
Oct-08	1.3%	-0.1%	-16.9%
Nov-08	2.2%	5.3%	-7.2%
Dec-08	0.9%	3.4%	1.1%

* Historical Scenario from 7/1/16 – 1/31/17

Option 2

U.S. Government Solution | Proposal

Dynamic Duration Strategic Benchmark Construction

1 When rates are below fair value, shorten duration and include mortgages

10 YEAR YIELD BELOW FAIR VALUE

Constituents	Weight	Duration (yrs)
U.S. Government: Intermediate (1-10Y)	90%	4
U.S. Government (Full Maturity)	0%	
U.S. Government: Long (10Y+)	0%	
U.S. Mortgage Backed Securities	10%	

2 When rates are close to fair value move to the full U.S. Government Index

10 YEAR YIELD CLOSE TO FAIR VALUE

Constituents	Weight	Duration (yrs)
U.S. Government: Intermediate (1-10Y)	0%	6
U.S. Government (Full Maturity)	100%	
U.S. Government: Long (10Y+)	0%	
U.S. Mortgage Backed Securities	0%	

3 When rates are above fair value, extend duration

10 YEAR YIELD ABOVE FAIR VALUE

Constituents	Weight	Duration (yrs)
U.S. Government: Intermediate (1-10Y)	60%	9
U.S. Government (Full Maturity)	0%	
U.S. Government: Long (10Y+)	40%	
U.S. Mortgage Backed Securities	0%	

Comparison of Options

- Option 1 provides better downside protection in a bear market and reduces implementation risk
- Option 2 provides better protection from rising interest rates but increases implementation complexity

Interest Rate Scenario

	+100 bps			-100 bps		
	Period	10Y US Treasury Yield (%)		Period	10Y US Treasury Yield (%)	
	7/1/2016	1.4		11/9/2015	2.4	
	1/31/2017	2.4		7/8/2016	1.4	
Index	Return for Period	Duration (7/1/2016)	Duration (1/31/2017)	Return for Period	Duration (11/9/2015)	Duration (7/8/2016)
U.S. Government	-3.9%	6.3	5.9	6.5%	5.7	6.4
Intermediate (1-10Y)	-2.3%	3.9	3.9	4.0%	3.8	3.9
Long (10Y+)	-12.3%	18.0	17.1	21.3%	16.7	18.1
U.S. Mortgage Backed Securities (MBS)	-1.5%	2.4	4.8	3.7%	4.7	2.2
90% Intermediate / 10% MBS	-2.2%	3.8	4.0	4.0%	3.9	3.8

- Source: Neuberger Berman

Final Thoughts – Board Actions

- Verus and Staff recommend the Board approve the carve out of the Treasury allocation from core fixed income
- Verus and Staff recommend converting the Neuberger Berman Core Fixed Income account to a Treasury portfolio
- Verus and Staff believe that a key role of the Treasury allocation within the strategic asset allocation is to provide risk mitigation in market downturns, as such we recommend Option 1 from Neuberger Berman for implementation
 - Forward curve interest rate projections are not robust
 - Option 2 is also a consideration if interest rate risk is a Board concern
- If the Board prefers to have Neuberger Berman present to SCERS' Board prior to approval, then this would take place at the December meeting, with consideration of above recommendations to take place then

RESOLUTION NO. SCERS 2017-10

**RESOLUTION OF THE BOARD OF RETIREMENT
OF THE SACRAMENTO COUNTY EMPLOYEES' RETIREMENT SYSTEM**

**TO EXECUTE AN INVESTMENT MANAGEMENT AGREEMENT WITH
NEUBERGER BERMAN TO MANAGE A 5% TREASURY ALLOCATION**

WHEREAS, traditionally SCERS has a sustained a 20% target allocation to Fixed Income, 15% of which is comprised of core and core plus strategies; and

WHEREAS, the 15% target allocation is currently managed by three investment managers that are implementing the core or core plus investment strategy;

WHEREAS, investment manager Neuberger Berman currently manages a 5% allocation in a core strategy;

WHEREAS, in January, 2017, the Board approved a revised strategic asset allocation for SCERS;

WHEREAS, the new strategic asset allocation calls for a 5% Treasury allocation;

WHEREAS, SCERS and its consultant Verus have analyzed the current Fixed Income portfolio to determine the best source of funds for the new Treasury allocation and the best management strategy.

NOW, THEREFORE, IT IS RESOLVED THAT:

- 1) SCERS use the existing core fixed income allocation managed by Neuberger Berman as the source for the dedicated U.S. Treasury allocation and;
- 2) SCERS use Neuberger Berman to implement the newly created U.S. Treasury allocation; and
- 3) The Board authorize Staff to terminate the existing core Fixed Income investment management agreement with Neuberger Berman; and
- 4) The Board authorize the Chief Executive Officer or Board President to negotiate acceptable terms and execute the documents necessary to enter into an investment management agreement with Neuberger Berman for the management of the 5% Treasury allocation.

On motion made by Member _____, Seconded by Member _____, the foregoing Resolution was passed and adopted by the Board of the Sacramento County Employees' Retirement System this 7th day of November, 2017, by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

President of the Board of the
Sacramento County Employees'
Retirement System

ATTEST:

Secretary of the Board of the
Sacramento County Employees'
Retirement System