Board of Retirement Regular Meeting
Sacramento County Employees' Retirement System

Agenda Item 17

MEETING DATE: February 15, 2023

SUBJECT: Review of 2023 Capital Market Assumptions

		Deliberation	Receive
SUBMITTED FOR: __ Consent		___ and Action	_X_ and File

RECOMMENDATION

Receive and file the report from general investment consultant, Verus Advisory, reviewing their 2023 capital market assumptions (CMAs).

PURPOSE

This item supports the 2023 Annual Investment Plan to evaluate strategic asset allocation modeling adjustments utilizing updated capital market assumptions.

DISCUSSION

Capital market assumptions forecast 10-year expected return and standard deviations for major assets classes and sub-asset classes. Verus develops these assumptions for nearly all segments of SCERS' investable universe. The CMAs are used as inputs when Verus models allocation mixes during asset liability modeling (ALM) studies.

SCERS last conducted an ALM study in 2021, which resulted in the Board approving a revised strategic asset allocation. At the time, given the low interest rate environment and rich valuations across most asset classes, the SCERS portfolio modeled to 5.7%. At the time, private market expected returns were much more robust than those within public markets. As an example, private equity and private real assets had 10-year forecasted returns of 9.4% and 8.8%, respectively, while international public equities and core plus fixed income had forecasted returns of 5.2% and 1.5%, respectively.

Over the past two years, interest rates have risen dramatically as central banks fight inflation levels that have not been experienced in 40 years. This resulted in interest-rate-sensitive fixed income experiencing significant negative returns in 2022 and public equities selling off dramatically. With interest rates reset to higher levels and public equities and fixed income at

much lower valuations, going forward return expectations have changed meaningfully. International public equities and core plus fixed income now have forecasted returns of 9.1% and 4.6%, respectively. It should be noted that U.S. public equity forecasted returns have not increased nearly as much as international equities, as the latter have been negatively impacted by a very strong U.S. dollar, and many expect the U.S. dollar to weaken as interest rate hikes moderate. Alternative asset and private market expected returns have remained within 1% on either side of 2021 levels for the most part.

Modeling SCERS' current asset allocation against Verus' updated 2023 CMAs results in a total portfolio forecasted 10-year return of 7.4%, versus the 5.7% return forecasted in 2021. At the time that the Board approved the revised strategic asset allocation, Staff, Verus, and the Board discussed the fact that CMAs change yearly based on the movements of the markets, and that SCERS' actual experience will fall within a broad range of outcomes around the modeled median return. Caution was placed in putting too large a weighting on a single number. Staff, Verus, and the Board also discussed that the asset allocation should be revisited and evaluated prior to the next ALM study as CMAs adjust.

While no recommendations are being made at this meeting, Staff and Verus plan to evaluate the current strategic asset allocation using the updated CMAs, for any potential adjustments that should be considered. Any changes are expected to be small and would represent small tweaks to the asset allocation, prior to the next full ALM study, which is not expected to take place until 2024 at the earliest.

A natural consideration is the fact that short duration bonds are now yielding over 4% in the current interest rate environment, which offers a compelling return for minimal risk versus other assets. Verus is modeling a few scenarios, which include marginally increasing the allocation to short duration government bonds/credit while marginally decreasing the allocation to other segments.

ATTACHMENT

- Board Order
- Verus presentation

Prepared by: Reviewed by:

/S/   **/S/**

_____   _____
Steve Davis   Eric Stern
Chief Investment Officer   Chief Executive Officer

Retirement Board Order
Sacramento County Employees' Retirement System

Before the Board of Retirement
February 15, 2023

AGENDA ITEM:

2023 Capital Market Assumptions

THE BOARD OF RETIREMENT hereby approves Staff's recommendation to receive and file the report from general investment consultant, Verus Advisory, reviewing their 2023 capital market assumptions (CMAs).

I HEREBY CERTIFY that the above order was passed and adopted on February 15, 2023 by the following vote of the Board of Retirement, to wit:

AYES:

NOES:

ABSENT:

ABSTAIN:

ALTERNATES:
(Present but not voting)

_____
Keith DeVore
Board President

_____
Eric Stern
Chief Executive Officer and
Board Secretary

PERSPECTIVES
THAT DRIVE
ENTERPRISE
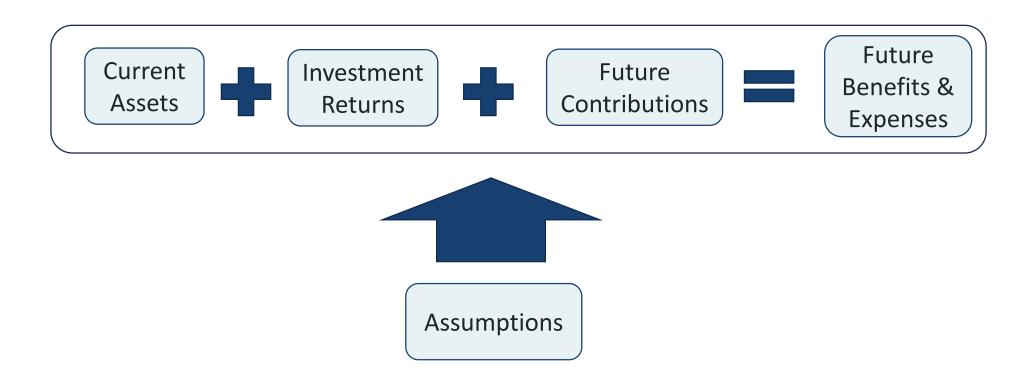## SUCCESS

FEBRUARY 2023

Review of 2023 Capital Market Assumptions

Sacramento County Employees' Retirement System

Executive summary

- The purpose of today's presentation is to review the updated projected returns for SCERS' current asset allocation

- Capital market assumptions moved materially higher for 2023 on the back of higher interest rates and improvements in valuations for public equities

- Following our discussion today, Staff and Verus will evaluate the asset allocation for any adjustments, and come back to the Board with any recommendations. Any changes are expected to be modest and reflect small tweaks to the asset allocation.

The pension equation

2023 vs. 2022 return forecast

Chart showing return forecast percentages by asset class:

Asset Class	Value
US Large	1.2%
US Small	0.1%
International Developed	3.0%
International Developed Small	4.5%
Emerging Markets	2.4%
Private Equity	-0.3%
US TIPS	2.4%
US Treasury	2.3%
Global Sovereign ex-US	1.7%
Core Fixed Income	2.1%
Core Plus Fixed Income	2.2%
Short-Term Gov't/Credit	2.4%
Long-Term Credit	2.9%
High Yield Corp. Credit	3.3%
Bank Loans	4.5%
Global Credit	3.0%
Emerging Market Debt (Hard)	3.7%
Emerging Market Debt (Local)	2.8%
Commodities	2.7%
Hedge Fund	0.8%
Core Real Estate	-0.7%
Infrastructure	1.2%

Source: Verus, as of 9/30/22

Methodology

CORE INPUTS

— We use a fundamental building block approach based on several inputs, including historical data and academic research to create asset class return forecasts.
— For most asset classes, we use the long-term historical volatility after adjusting for autocorrelation.
— Correlations between asset classes are calculated based on the last 10 years. For illiquid assets, such as private equity and private real estate, we use BarraOne correlation estimates.

Asset	Return Methodology	Volatility Methodology*
Inflation	25% weight to the University of Michigan Survey 5-10 year ahead inflation expectation and the Survey of Professional Forecasters (Fed Survey), and the remaining 50% to the market's expectation for inflation as observed through the 10-year TIPS breakeven rate	-
Cash	75% * current federal funds rate + 25% * U.S. 10-year Treasury yield	Long-term volatility
Bonds	Nominal bonds: current yield; Real bonds: real yield + inflation forecast	Long-term volatility
International Bonds	Current yield	Long-term volatility
Credit	Current option-adjusted spread + U.S. 10-year Treasury – effective default rate	Long-term volatility
International Credit	Current option-adjusted spread + foreign 10-year Treasury – effective default rate	Long-term volatility
Private Credit	Levered gross return (LIBOR + spread + original issuance discounts) – management fees – carried interest	Estimated volatility
Equity	Current yield + real earnings growth (historical average) + inflation on earnings (inflation forecast) + expected P/E change	Long-term volatility
Intl Developed Equity	Current yield + real earnings growth (historical average) + inflation on earnings (intl. inflation forecast) + expected P/E change	Long-term volatility
Private Equity	US large cap domestic equity forecast * 1.85 beta adjustment	1.2 * Long-term volatility of U.S. small cap
Commodities	Collateral return (cash) + spot return (inflation forecast) + roll return (assumed to be zero)	Long-term volatility
Hedge Funds	Return coming from traditional betas + 15-year historical idiosyncratic return	Long-term volatility
Core Real Estate	Cap rate + real income growth – capex + inflation forecast	65% of REIT volatility
REITs	Core real estate	Long-term volatility
Value-Add Real Estate	Core real estate + 2%	Volatility to produce Sharpe Ratio (g) equal to core real estate
Opportunistic Real Estate	Core real estate + 3%	Volatility to produce Sharpe Ratio (g) equal to core real estate
Infrastructure	Current yield + real income growth + inflation on earnings (inflation forecast)	Long-term volatility
Risk Parity	Expected Sharpe Ratio * target volatility + cash rate	Target volatility

Long-term historical volatility data is adjusted for autocorrelation (see Appendix)

Market observations

— Growth Assets

- U.S. equity markets have outperformed non-U.S. for several years, leading to a higher allocation to U.S. equity markets in the global index

- Dollar is likely to continue to weaken against foreign currencies as interest rate hikes wane

- Dislocations in the financing market are creating interesting opportunities in credit

— Diversifying Assets

- Higher interest rates led to fixed income becoming a more compelling asset class – higher return & increased protection against equity risk

- Inverted yield curve reduces the attractiveness of longer duration bonds

- Case for hedge funds as an alternative to fixed income is less compelling today compared to 2022

— Inflation Hedge Assets

- Fed fighting inflation aggressively – lower commodity prices signaling some success

- Opportunistic time to rebalance into underperforming assets

SCERS Policy Allocation

	Current Policy	Return (g)	Standard Deviation	Sharpe Ratio (g)
US Large	18.0	6.5	15.6	0.21
US Small	2.0	5.4	21.5	0.10
International Developed	9.0	9.1	17.8	0.33
International Developed Small	2.0	9.2	22.1	0.27
Emerging Markets	5.0	8.5	25.2	0.21
Global Equity	4.0	7.4	17.1	0.23
High Yield Corp. Credit	1.0	6.4	11.2	0.28
Bank Loans	1.0	6.8	9.2	0.38
Private Equity	11.0	9.2	25.8	0.23
Private Credit	5.0	8.2	13.0	0.38
Total Growth Assets	**58**			
Core Plus Fixed Income	12.0	4.6	4.6	0.28
US Treasury	4.0	3.8	7.1	0.07
Diversifying Absolute Return*	7.0	4.8	4.8	0.31
Cash	1.0	3.3	1.2	-
Total Diversifying	**24**			
Core Real Estate	6.0	5.8	12.6	0.20
Value Add Real Estate	1.5	7.8	15.5	0.29
Opportunistic Real Estate	1.5	8.8	21.3	0.26
Liquid Real Return*	2.0	5.7	16.3	0.15
Private Real Assets*	7.0	7.8	17.3	0.26
Total Real Return	**18**			
Total Allocation	**100**			

Mean Variance Analysis	
Forecast 10 Year Return	**7.44**
Standard Deviation	11.9
1st percentile ret. 1 year	-16.8
Sharpe Ratio	0.39
% in Liquid Assets	63.0%
% in Illiquid Assets	37.0%

Diversifying Absolute Return modeled with Asymmetric Hedge Funds; Liquid Real Return modeled with Commodities; Private Real Assets modeled with Infrastructure

- We last ran your asset allocation through our CMA model in 2021.

- Compared to 2021, the current policy expected return increased from 5.7% to 7.44%

- This mostly reflects the dramatic increase in expected returns across fixed income and non-U.S. equities

Next steps

— Next asset liability study isn't until at least 2024

— Staff and Verus to evaluate adjustments to the asset allocation given the meaningful CMA forecast changes

- Includes Verus performing modeling on a few asset allocation scenarios

- Any changes are expected to be modest and reflect small tweaks

— Staff and Verus will return to the Board with any recommendations

Appendix

10-year return & risk assumptions

Asset Class	Index Proxy	Ten Year Return Forecast		Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)	10-Year Historical Sharpe Ratio (g)	10-Year Historical Sharpe Ratio (a)
		Geometric	Arithmetic					
Equities								
U.S. Large	S&P 500	6.5%	7.6%	15.6%	0.21	0.28	0.76	0.79
U.S. Small	Russell 2000	5.4%	7.5%	21.5%	0.10	0.20	0.42	0.49
International Developed	MSCI EAFE	9.1%	10.5%	17.8%	0.33	0.40	0.21	0.27
International Small	MSCI EAFE Small Cap	9.2%	11.3%	22.1%	0.27	0.36	0.29	0.36
Emerging Markets	MSCI EM	8.5%	11.2%	25.2%	0.21	0.31	0.02	0.10
Global Equity	MSCI ACWI	7.4%	8.7%	17.1%	0.23	0.32	0.47	0.52
Global Equity ex-US	MSCI ACWI ex-US	9.0%	10.7%	19.9%	0.29	0.37	0.16	0.23
Private Equity	CA U.S. Private Equity	9.2%	12.1%	25.8%	0.23	0.34	-	-
Private Equity Direct	CA U.S. Private Equity	10.2%	13.0%	25.8%	0.27	0.38	-	-
Private Equity (FoF)	CA U.S. Private Equity	8.2%	11.1%	25.8%	0.19	0.30	-	-
Fixed Income								
Cash	30 Day T-Bills	3.3%	3.3%	1.2%	-	-	-	-
U.S. TIPS	Bloomberg U.S. TIPS 5-10	4.1%	4.3%	5.6%	0.14	0.18	0.06	0.08
U.S. Treasury	Bloomberg Treasury 7-10 Year	3.8%	4.0%	7.1%	0.07	0.10	(0.02)	0.01
Long U.S. Treasury	Bloomberg Treasury 20+ Year	3.8%	4.6%	13.2%	0.04	0.10	(0.01)	0.05
Global Sovereign ex U.S.	Bloomberg Global Treasury ex U.S.	2.2%	2.7%	10.0%	(0.11)	(0.06)	(0.47)	(0.44)
Global Aggregate	Bloomberg Global Aggregate	3.0%	3.2%	6.7%	(0.05)	(0.01)	(0.30)	(0.28)
Core Fixed Income	Bloomberg U.S. Aggregate Bond	4.3%	4.4%	4.6%	0.22	0.24	0.05	0.07
Core Plus Fixed Income	Bloomberg U.S. Universal	4.6%	4.7%	4.6%	0.28	0.30	0.17	0.14
Short-Term Gov't/Credit	Bloomberg U.S. Gov't/Credit 1-3 Year	3.9%	4.0%	3.7%	0.16	0.19	0.11	0.11
Short-Term Credit	Bloomberg Credit 1-3 Year	4.3%	4.4%	3.7%	0.27	0.30	0.40	0.40
Long-Term Credit	Bloomberg Long U.S. Credit	5.3%	5.9%	11.0%	0.18	0.24	0.11	0.16
High Yield Corp. Credit	Bloomberg U.S. Corporate High Yield	6.4%	7.0%	11.2%	0.28	0.33	0.44	0.47
Bank Loans	S&P/LSTA Leveraged Loan	6.8%	7.2%	9.2%	0.38	0.42	0.53	0.54
Global Credit	Bloomberg Global Credit	4.5%	4.8%	7.9%	0.15	0.19	0.00	0.03
Emerging Markets Debt (Hard)	JPM EMBI Global Diversified	8.9%	9.4%	10.7%	0.52	0.57	0.05	0.09
Emerging Markets Debt (Local)	JPM GBI-EM Global Diversified	7.0%	7.7%	12.3%	0.30	0.36	(0.28)	(0.23)
Private Credit	S&P LSTA Leveraged Loan Index	8.2%	9.0%	13.0%	0.38	0.44	-	-
Private Credit (Direct Lending - Unlevered)	S&P LSTA Leveraged Loan Index	6.8%	7.2%	9.2%	0.38	0.42	-	-
Private Credit (Direct Lending - Levered)	S&P LSTA Leveraged Loan Index	9.1%	10.1%	15.3%	0.38	0.44	-	-
Private Credit (Credit Opportunities)	S&P LSTA Leveraged Loan Index	8.5%	9.4%	13.8%	0.38	0.44	-	-
Private Credit (Junior Capital / Mezzanine)	S&P LSTA Leveraged Loan Index	9.0%	10.0%	15.1%	0.38	0.44	-	-
Private Credit (Distressed)	S&P LSTA Leveraged Loan Index	9.1%	12.7%	29.1%	0.20	0.32	-	-

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

10-year return & risk assumptions

Asset Class	Index Proxy	Ten Year Return Forecast		Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)	10-Year Historical Sharpe Ratio (g)	10-Year Historical Sharpe Ratio (a)
		Geometric	Arithmetic					
Other								
Commodities	Bloomberg Commodity	5.7%	6.9%	16.3%	0.15	0.22	(0.20)	(0.13)
Hedge Funds	HFRI Fund Weighted Composite	4.6%	4.9%	7.7%	0.17	0.21	0.70	0.71
Hedge Fund of Funds	HFRI Fund of Funds Composite	3.6%	3.9%	7.7%	0.04	0.08	-	-
Hedge Funds (Equity Style)	Custom HFRI Benchmark Mix*	7.4%	8.4%	14.6%	0.28	0.35	-	-
Hedge Funds (Credit Style)	Custom HFRI Benchmark Mix*	7.1%	7.5%	9.8%	0.39	0.43	-	-
Hedge Funds (Asymmetric Style)	Custom HFRI Benchmark Mix*	4.8%	4.9%	4.8%	0.31	0.33	-	-
Real Estate Debt	Bloomberg CMBS IG	5.2%	5.5%	7.5%	0.25	0.29	0.26	0.28
Core Real Estate	NCREIF Property	5.8%	6.5%	12.6%	0.20	0.25	1.94	1.87
Value-Add Real Estate	NCREIF Property + 200bps	7.8%	8.9%	15.5%	0.29	0.36	-	-
Opportunistic Real Estate	NCREIF Property + 300bps	8.8%	10.8%	21.3%	0.26	0.35	-	-
REITs	Wilshire REIT	5.8%	7.5%	19.4%	0.13	0.22	0.32	0.40
Global Infrastructure	S&P Global Infrastructure	7.8%	9.1%	17.3%	0.26	0.34	0.28	0.35
Risk Parity**	S&P Risk Parity 10% Vol Index	8.3%	8.8%	10.0%	0.50	0.55	-	-
Currency Beta	MSCI Currency Factor Index	1.6%	1.7%	3.4%	(0.49)	(0.46)	0.20	0.21
Inflation		2.5%	-	-	-	-	-	-

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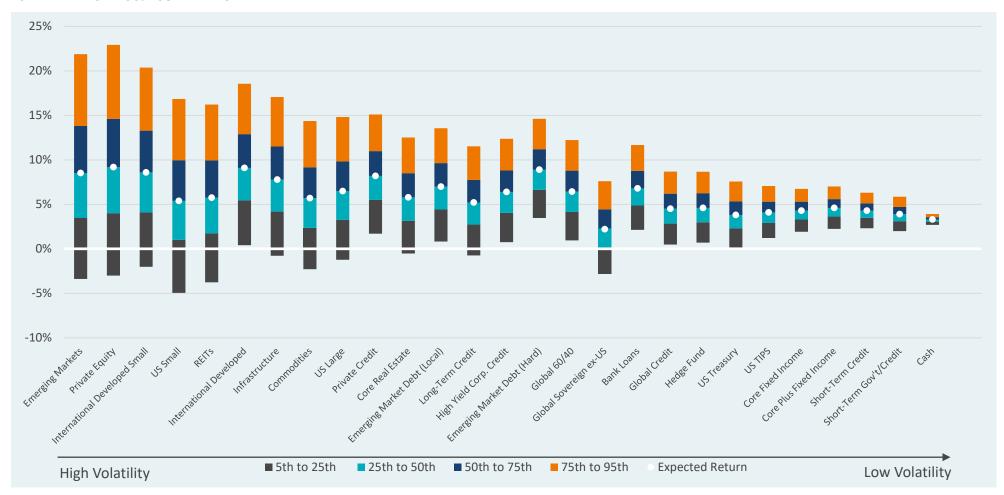
*To represent hedge fund styles, we use a combination of HFRI benchmarks: Equity Style = 33% HFRI Fundamental Growth, 33% HFRI Fundamental Value, 33% HFRI Activist. Credit Style = 20% HFRI Distressed/Restructuring, 20% HFRI Credit Arbitrage, 20% HFRI Fixed Income-Corporate, 20% HFRI Fixed Income-Convertible Arbitrage, 20% HFRI Fixed Income-Asset Backed. Asymmetric Style = 50% HFRI Relative Value, 50% HFRI Macro

**The Risk Parity forecast shown here assumes a 10% target volatility strategy. We recommend customizing this forecast to the target volatility specifications of the risk parity strategy that an investor wishes to model. Please speak with your Verus consultant for customization needs.

Range of likely 10-year outcomes

10-YEAR RETURN 90% CONFIDENCE INTERVAL

Legend: 5th to 25th | 25th to 50th | 50th to 75th | 75th to 95th | Expected Return

High Volatility → Low Volatility

Source: Verus, MPI