

Asset Liability Management: Adoption of Capital Market Assumptions

Sterling Gunn, Managing Investment Director, TLPMI

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Summary

- Capital Market Assumptions (CMAs) include projected asset returns, volatility and correlation. This presentation brings forward the CMAs for adoption to use in the 2021-22 Asset Liability Management (ALM) process for the Public Employees' Retirement Fund. CMAs for the Affiliate Funds will be presented for adoption at a future meeting.
- The CMAs have been developed from 03/31/21 survey data and reviewed internally to help ensure the expected returns are appropriate for our asset classes and strategies.
- The survey represents diverse views and incorporates economic and market uncertainty into our ALM process.
- As long-term investors, we believe the longer views are most relevant to our discount rate; however, the near-term economic and market environment can be impactful. The CMAs presented here are 5 years and 20 years to incorporate this dynamic.
- When assessing portfolios, economic scenarios can be used to evaluate portfolio performance in varying economic markets. Included in the appendix are three economic scenarios: baseline, upside, and downside for the near-term and long-term time horizons along with corresponding CMAs for the upside and downside scenarios.
- Our process includes use of investment analysis tools and technology from leading industry providers.
- Recommendation: Adopt the proposed CMAs in the baseline economic scenario for use in the 2021-22 ALM process.

Capital Market Assumptions – Baseline Economic Scenario

Asset Class	Asset Segment	Near-Term Return (5-year)	Long-Term Return (20-year)	Volatility (20-year)
Growth	Global Equity – Cap Weighted	6.8%	6.8%	17.0%
	Global Equity – Non-Cap Weighted	5.1%	6.1%	13.5%
	Private Equity	8.9%	9.6%	30.1%
Income	Long U.S. Treasuries	0.1%	2.6%	12.4%
	Spread Product – Mortgage-Backed Securities	1.2%	2.8%	3.1%
	Spread Product – Investment Grade Corporates	0.1%	3.9%	8.5%
	Spread Product – High Yield	2.2%	4.7%	9.2%
	Spread Product – Sovereigns	3.2%	4.5%	10.4%
	High Yield Segment	2.2%	4.6%	9.0%
Real Assets	Real Estate	5.3%	5.5%	12.2%
Liquidity	Liquidity	0.3%	1.7%	0.8%
Other	Private Debt	6.8%	5.9%	9.9%
	Emerging Market Debt	2.7%	4.8%	10.3%

Asset Class Average Correlations – 20 Years

	Global Equity Cap-weighted	Global Equity Non-Cap-weighted	Private Equity	Treasury	Mortgage-backed Securities	Sovereign Bonds	Investment Grade Corporates	High Yield CP	High Yield Segment	Emerging Market Debt	Private Debt	Real Assets	Liquidity	Risk-free Asset
Global Equity Cap-weighted	1.00	0.97	0.62	0.11	0.13	0.21	0.29	0.38	0.46	0.27	0.42	0.36	0.11	0.11
Global Equity Non-Cap-weighted	0.97	1.00	0.61	0.11	0.14	0.21	0.28	0.37	0.45	0.27	0.42	0.36	0.17	0.16
Private Equity	0.62	0.61	1.00	0.08	0.09	0.15	0.20	0.27	0.33	0.19	0.33	0.22	0.06	0.06
Treasury	0.11	0.11	0.08	1.00	0.77	0.96	0.91	0.79	0.36	0.59	0.07	0.09	0.09	0.09
Mortgage-backed Securities	0.13	0.14	0.09	0.77	1.00	0.78	0.72	0.66	0.41	0.50	0.10	0.13	0.19	0.19
Sovereign Bonds	0.21	0.21	0.15	0.96	0.78	1.00	0.94	0.86	0.49	0.64	0.11	0.11	0.11	0.11
Investment Grade Corporates	0.29	0.28	0.20	0.91	0.72	0.94	1.00	0.93	0.65	0.66	0.14	0.13	0.10	0.10
High Yield CP	0.38	0.37	0.27	0.79	0.66	0.86	0.93	1.00	0.85	0.65	0.18	0.15	0.10	0.10
High Yield Segment	0.46	0.45	0.33	0.36	0.41	0.49	0.65	0.85	1.00	0.49	0.21	0.15	0.12	0.12
Emerging Market Debt	0.27	0.27	0.19	0.59	0.50	0.64	0.66	0.65	0.49	1.00	0.13	0.10	0.09	0.09
Private Debt	0.42	0.42	0.33	0.07	0.10	0.11	0.14	0.18	0.21	0.13	1.00	0.20	0.21	0.21
Real Assets	0.36	0.36	0.22	0.09	0.13	0.11	0.13	0.15	0.15	0.10	0.20	1.00	0.16	0.16
Liquidity	0.11	0.17	0.06	0.09	0.19	0.11	0.10	0.10	0.12	0.09	0.21	0.16	1.00	0.98
Risk-free Asset	0.11	0.16	0.06	0.09	0.19	0.11	0.10	0.10	0.12	0.09	0.21	0.16	0.98	1.00

Recommendation

For use in the 2021-22 ALM process for the Public Employees' Retirement Fund, adopt the proposed baseline economic scenario CMAs, which include:

1. Projected returns, 5 years and 20 years
2. Projected volatility, 20 years
3. Asset class correlations, 20 years

Appendix

Economic Scenarios: U.S. Near-Term

Economic Scenario	Growth	Inflation	Drivers/Assumptions	Representative Projected Returns		
				Public Equity	US Treasuries	US Real Estate
Baseline	2.7%	2.4%	<ul style="list-style-type: none"> Labor force participation recovers moderately Fed keeps rates low for longer No assumptions made on US fiscal infrastructure bill 	6.8%	0.1%	5.3%
Upside	2.9%	2.6%	<ul style="list-style-type: none"> Rapid recovery, confidence boost, re-opening Labor force participates in labor market sooner Fed keeps rates low for longer Output driven by pent-up demand and excess savings 	7.2%	-0.5%	5.7%
Downside	2.3%	1.8%	<ul style="list-style-type: none"> Labor force participation recovers moderately Business investment weakens Fiscal debt overhang, government seeks to repay gradually 	6.2%	0.9%	4.5%

Economic Scenarios: U.S. Long-Term

Economic Scenario	Growth	Inflation	Drivers/Assumptions	Representative Projected Returns		
				Public Equity	US Treasuries	US Real Estate
Baseline	1.8%	2.3%	<ul style="list-style-type: none"> Long-run equilibrium relationships remain consistent with history 	6.8%	2.6%	5.5%
Upside	2.3%	2.7%	<ul style="list-style-type: none"> No permanent negative impact to supply side of economy from pandemic In the long-run total factor productivity rises Fed framework facilitates higher inflation on average Income accrues to labor 	7.5%	2.7%	6.2%
Downside	1.6%	1.7%	<ul style="list-style-type: none"> Demographics/population growth remain weak Flat productivity growth 	6.3%	2.7%	4.7%

Capital Market Assumptions – Upside Economic Scenario

Asset Class	Asset Segment	Near-Term Return (5-year)	Long-Term Return (20-year)	Volatility (20-year)
Growth	Global Equity – Cap Weighted	7.2%	7.5%	17.0%
	Global Equity – Non-Cap Weighted	5.4%	6.6%	13.5%
	Private Equity	9.7%	10.8%	30.1%
Income	Long U.S. Treasuries	-0.5%	2.7%	12.4%
	Spread Product – Mortgage-Backed Securities	1.1%	2.9%	3.1%
	Spread Product – Investment Grade Corporates	-0.5%	4.0%	8.5%
	Spread Product – High Yield	2.2%	4.8%	9.2%
	Spread Product – Sovereigns	2.7%	4.6%	10.4%
	High Yield Segment	2.2%	4.7%	9.0%
Real Assets	Real Estate	5.7%	6.2%	12.2%
Liquidity	Liquidity	0.4%	1.7%	0.8%
Other	Private Debt	6.9%	5.8%	9.9%
	Emerging Market Debt	2.4%	4.9%	10.3%

Capital Market Assumptions – Downside Economic Scenario

Asset Class	Asset Segment	Near-Term Return (5-year)	Long-Term Return (20-year)	Volatility (20-year)
Growth	Global Equity – Cap Weighted	6.2%	6.3%	17.0%
	Global Equity – Non-Cap Weighted	4.6%	5.5%	13.5%
	Private Equity	8.0%	8.5%	30.1%
Income	Long U.S. Treasuries	0.9%	2.7%	12.4%
	Spread Product – Mortgage-Backed Securities	1.4%	2.5%	3.1%
	Spread Product – Investment Grade Corporates	0.8%	4.0%	8.5%
	Spread Product – High Yield	2.3%	4.3%	9.2%
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Real Assets	Real Estate	4.5%	4.7%	12.2%
Liquidity	Liquidity	0.0%	1.0%	0.8%
Other	Private Debt	6.3%	4.8%	9.9%
	Emerging Market Debt	3.2%	4.8%	10.3%