

STATE INVESTMENT COUNCIL MEETING

Asset Allocation Discussion

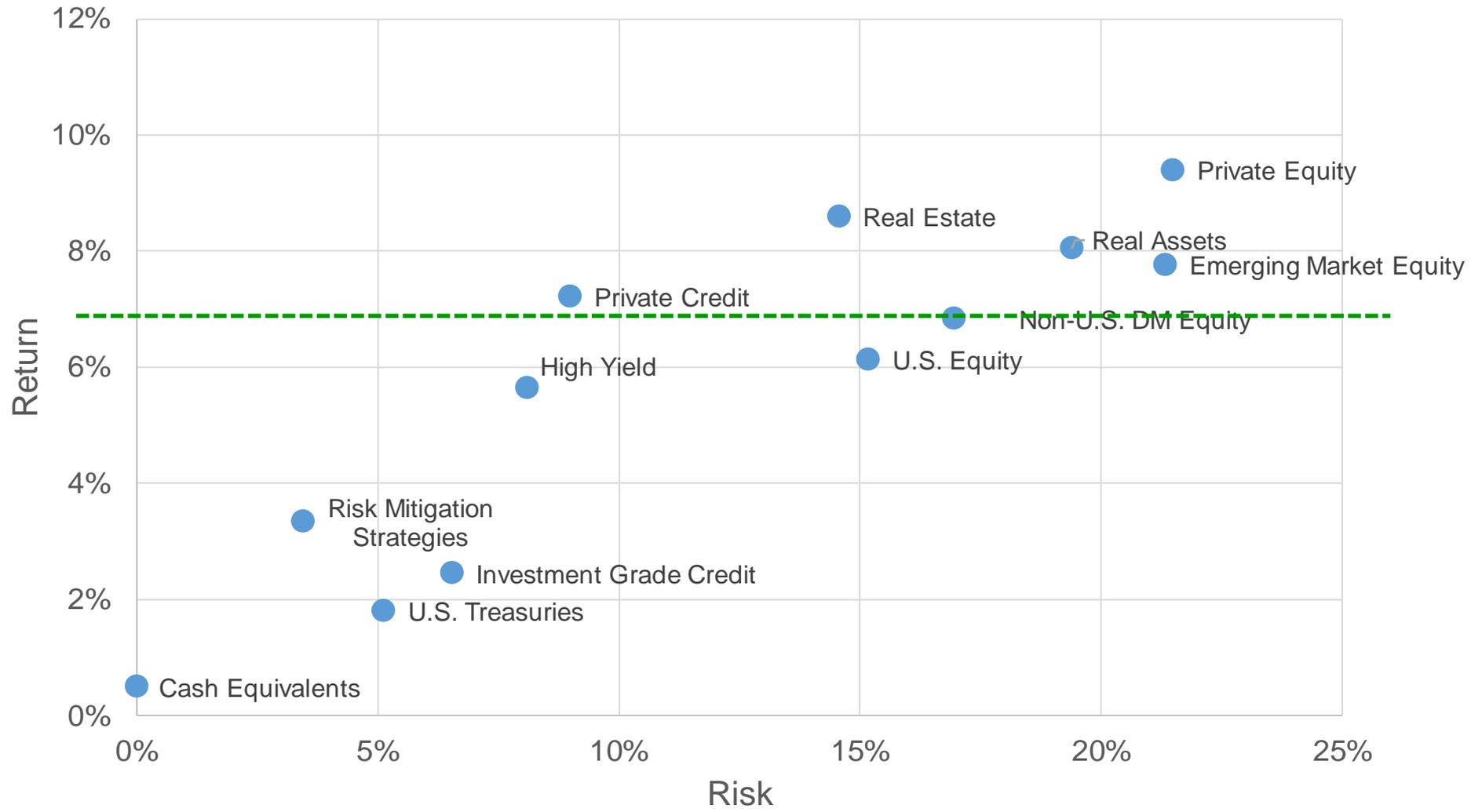
July 22, 2020

Capital Market Assumptions

	FY21		FY20		Correlation Matrix Recommendation											
	Compound Return	Vol	Compound Return	Vol	1	2	3	4	5	6	7	8	9	10	11	12
1 U.S. Equity	6.14%	15.19%	6.12%	17.90%	1.00											
2 Non-U.S. Developed Market Equity	6.83%	16.95%	6.71%	20.00%	0.78	1.00										
3 Emerging Market Equity	7.77%	21.34%	7.64%	27.00%	0.72	0.75	1.00									
4 Private Equity	9.40%	21.50%	9.00%	20.50%	0.70	0.73	0.70	1.00								
5 Real Assets	8.05%	19.40%	7.90%	17.70%	0.55	0.63	0.58	0.50	1.00							
6 Real Estate	8.60%	14.57%	7.61%	12.54%	0.30	0.27	0.18	0.55	0.54	1.00						
7 High Yield	5.64%	8.11%	4.69%	12.00%	0.62	0.59	0.65	0.67	0.54	0.11	1.00					
8 Private Credit	7.22%	8.99%	7.60%	8.35%	0.74	0.65	0.66	0.83	0.42	0.68	0.89	1.00				
9 Investment Grade Credit	2.46%	6.54%	4.10%	5.60%	0.08	0.07	0.08	0.18	0.29	-0.07	0.37	0.49	1.00			
10 Cash Equivalents	0.50%	0.00%	2.80%	0.00%	0.09	0.05	0.07	0.04	0.02	0.25	0.14	-0.11	0.50	1.00		
11 U.S. Treasuries	1.81%	5.13%	2.61%	3.90%	-0.06	-0.05	-0.05	-0.51	-0.15	-0.13	0.05	-0.16	0.83	0.61	1.00	
12 Risk Mitigation Strategies	3.34%	3.46%	4.61%	3.68%	0.49	0.49	0.49	0.22	0.17	0.26	0.30	0.34	0.27	0.11	-0.15	1.00

Source: Aon, Aksia TorreyCove, Cliffwater, Division of Investment, Hamilton Lane, and Horizon

Risk versus Return by Asset Class and Strategy



Source: Aon, Aksia TorreyCove, Cliffwater, Division of Investment, Hamilton Lane, and Horizon

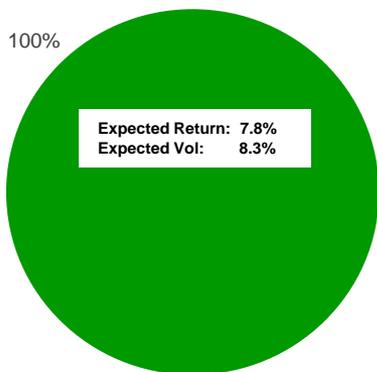
Asset Allocation With Expectations for Lower Investment Returns

Historical Yields for Bonds



Expected Returns Are Lower and Investment Portfolios Are More Complex

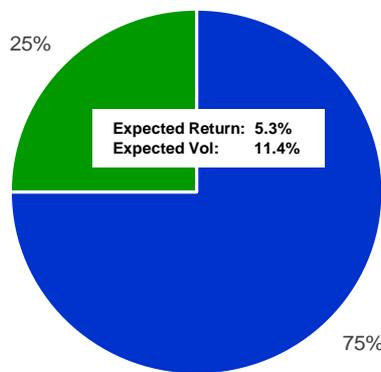
1995 – All Bond Portfolio



In 1995, an all-bond portfolio could have been structured to earn an attractive return for a pension plan.

Today, a portfolio comprised largely of stocks is expected to fall short of most plans' actuarial assumptions.

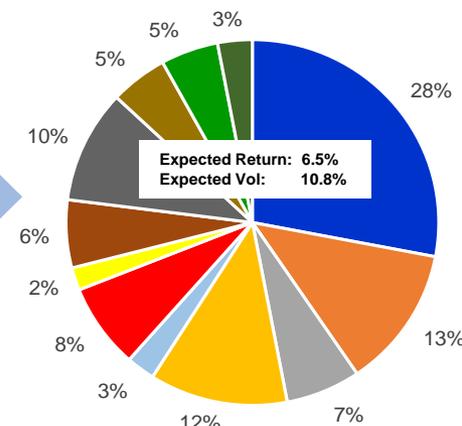
2020 – Stock and Bond Portfolio



A well diversified portfolio is better positioned for higher returns with less risk.

An important trade-off, however, is less liquidity for some of the highest yielding asset classes.

2020 – Well Diversified Portfolio



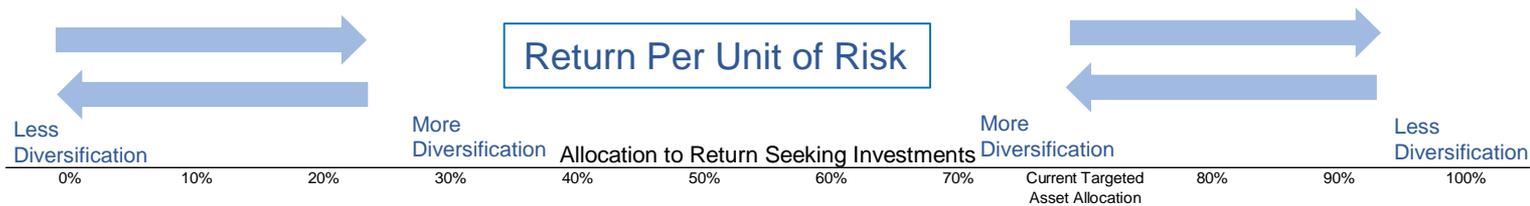
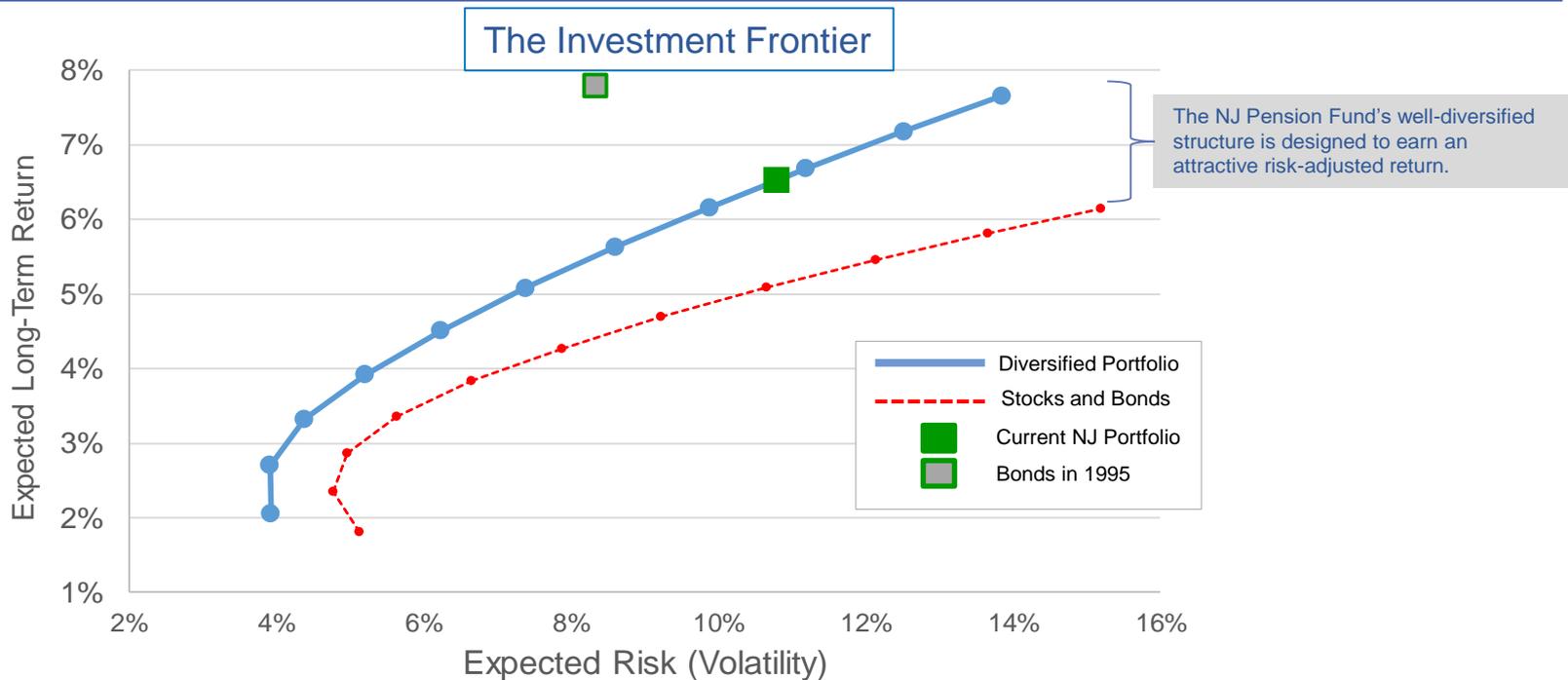
- U.S. Equity
- Real Assets
- IG Credit

- Non-U.S. DM Equity
- Real Estate
- Cash

- EM Equity
- High Yield
- U.S. Treasuries

- Private Equity
- Private Credit
- RMS

The NJ Pension Fund Seeks To Earn the Highest Return Per Unit of Risk



Expected Long-Term Return	2.06%	2.70%	3.32%	3.92%	4.51%	5.08%	5.63%	6.16%	6.52%	6.68%	7.18%	7.66%
Expected Risk	3.92%	3.26%	4.12%	5.28%	6.58%	7.96%	9.38%	10.83%	11.78%	12.29%	13.77%	15.25%
Return Per Unit of Risk	0.53	0.83	0.81	0.74	0.69	0.64	0.60	0.57	0.55	0.54	0.52	0.50

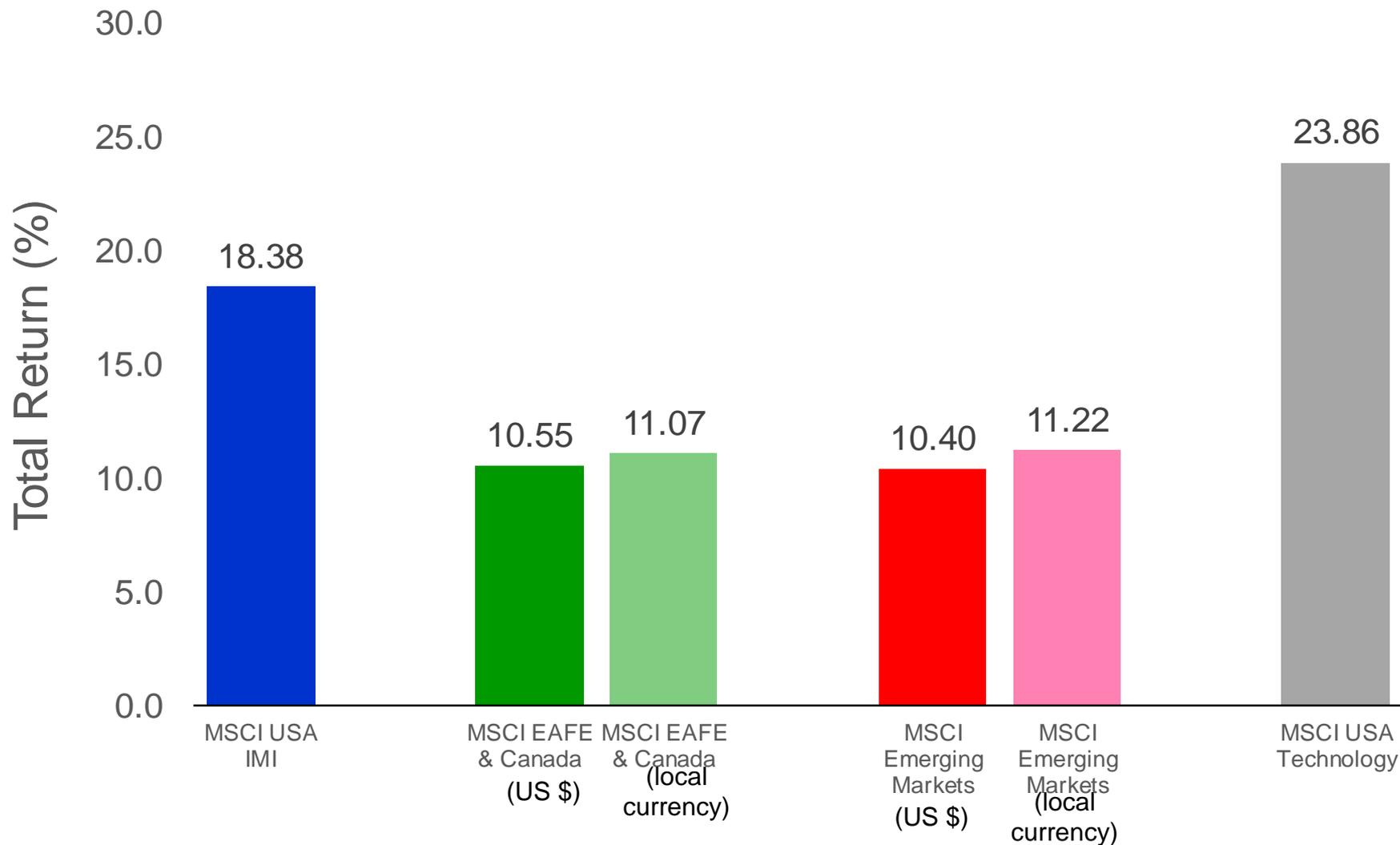
Expected Long-Term Return	1.81%	2.35%	2.87%	3.36%	3.83%	4.27%	4.69%	5.09%	5.35%	5.46%	5.81%	6.14%
Expected Risk	5.13%	4.77%	4.96%	5.63%	6.64%	7.87%	9.22%	10.65%	11.69%	12.13%	13.65%	15.19%
Return Per Unit of Risk	0.35	0.49	0.58	0.60	0.58	0.54	0.51	0.48	0.46	0.45	0.43	0.40

Lessons From the Asset-Liability Study Still Apply

	30 year Economic Cost (in \$ billions)		30 year Ending Funded Ratio (MVA / AL)	
	Base Case	Downside Risk	Base Case	Downside Risk
0% Return-Seeking	\$170.6	\$183.2	45%	28%
10% Return-Seeking	\$166.2	\$180.5	49%	30%
20% Return-Seeking	\$161.4	\$179.0	54%	31%
30% Return-Seeking	\$156.4	\$178.2	61%	32%
40% Return-Seeking	\$151.4	\$178.0	68%	32%
50% Return-Seeking	\$146.2	\$178.3	75%	32%
60% Return-Seeking	\$140.7	\$179.0	82%	32%
70% Return-Seeking	\$135.7	\$179.7	89%	31%
Current Targeted Asset Allocation	\$132.9	\$180.2	93%	30%
80% Return-Seeking	\$130.8	\$180.8	97%	29%
90% Return-Seeking	\$126.2	\$182.0	104%	28%
100% Return-Seeking	\$121.9	\$183.3	112%	27%

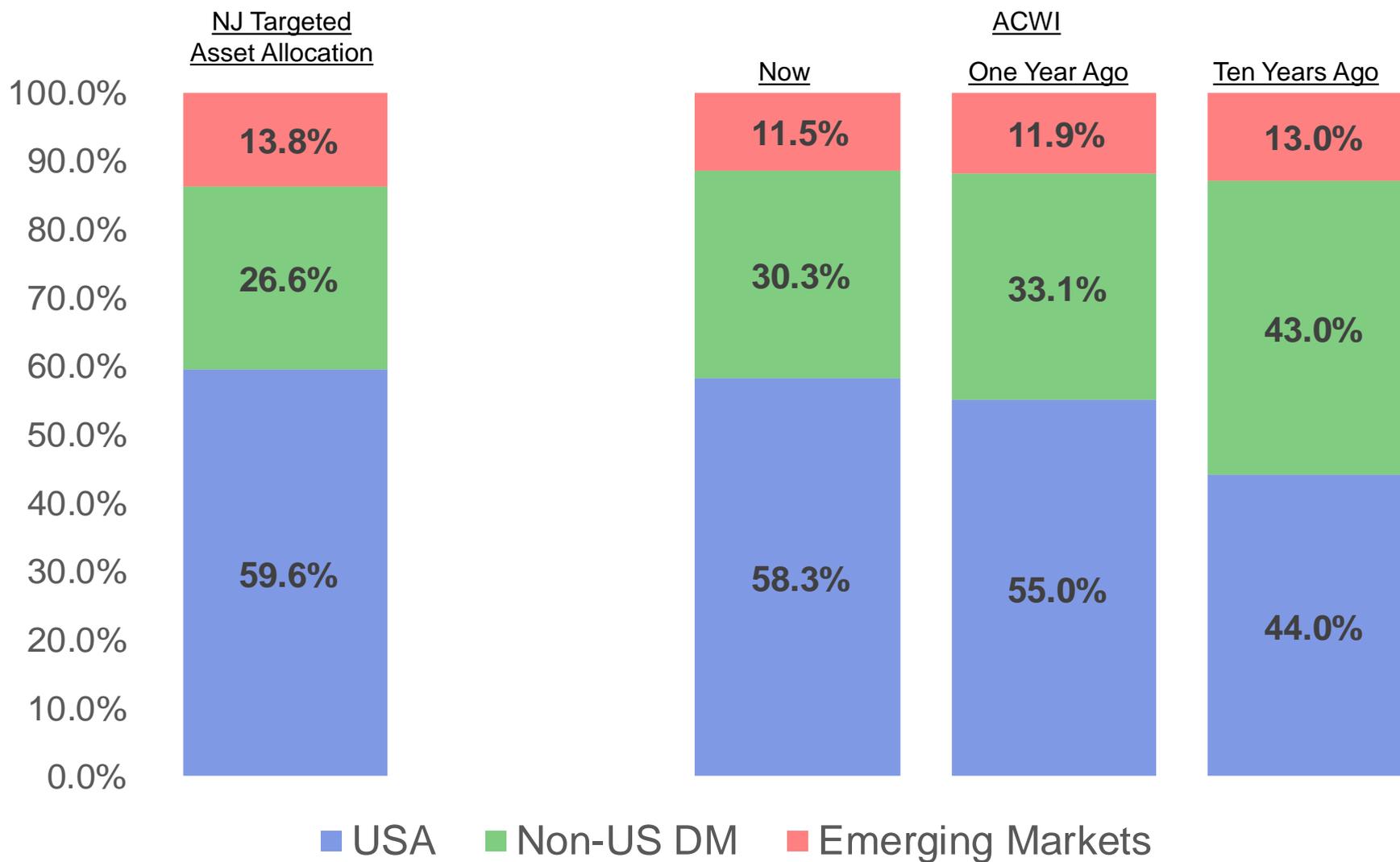
Home Country Bias within the Global Equity Allocation Has Benefited the Pension Fund

Global Public Equity Returns
March 9, 2009 – February 19, 2020

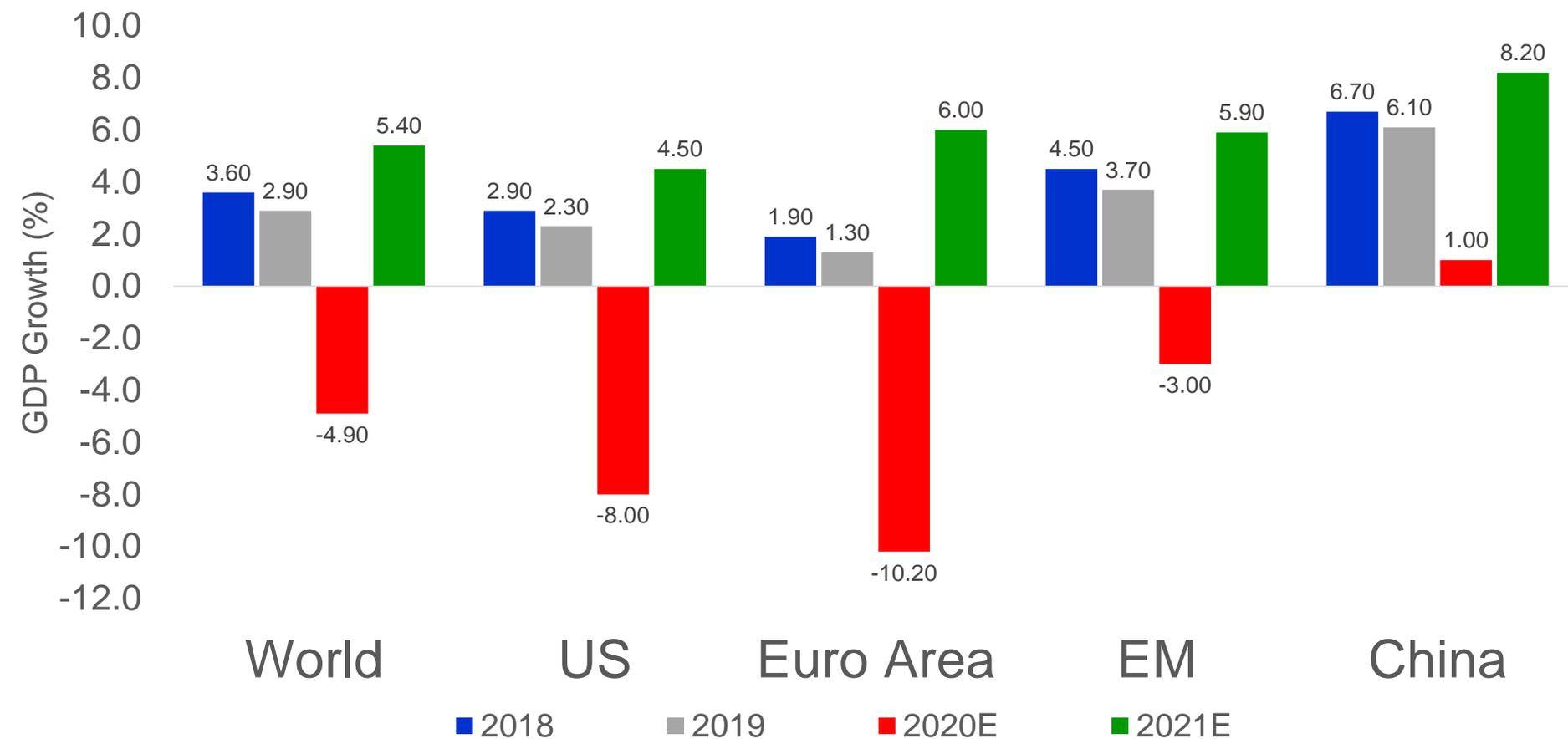


Global Equity Allocation

NJ Global Equity Allocation vs ACWI



The COVID Pandemic Has Halted the Global Economy



Global Equity Market Valuations

U.S. Equity Valuations



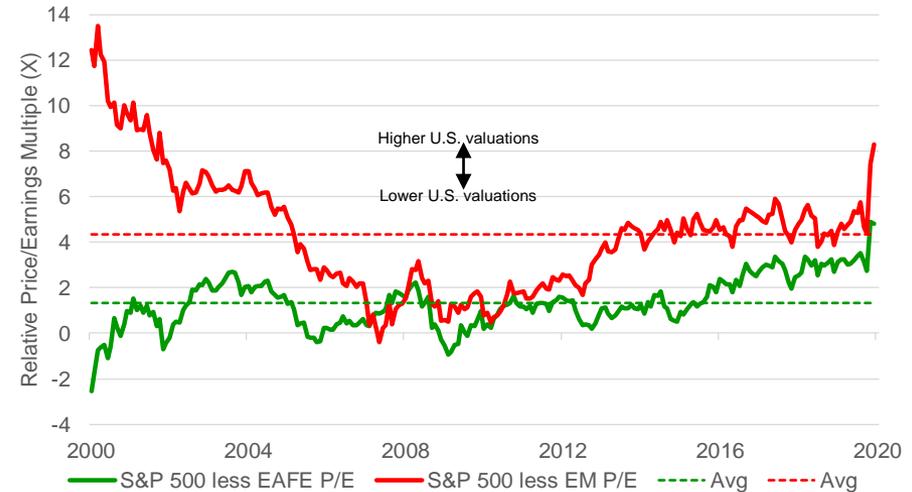
Non-U.S. DM Equity Valuations



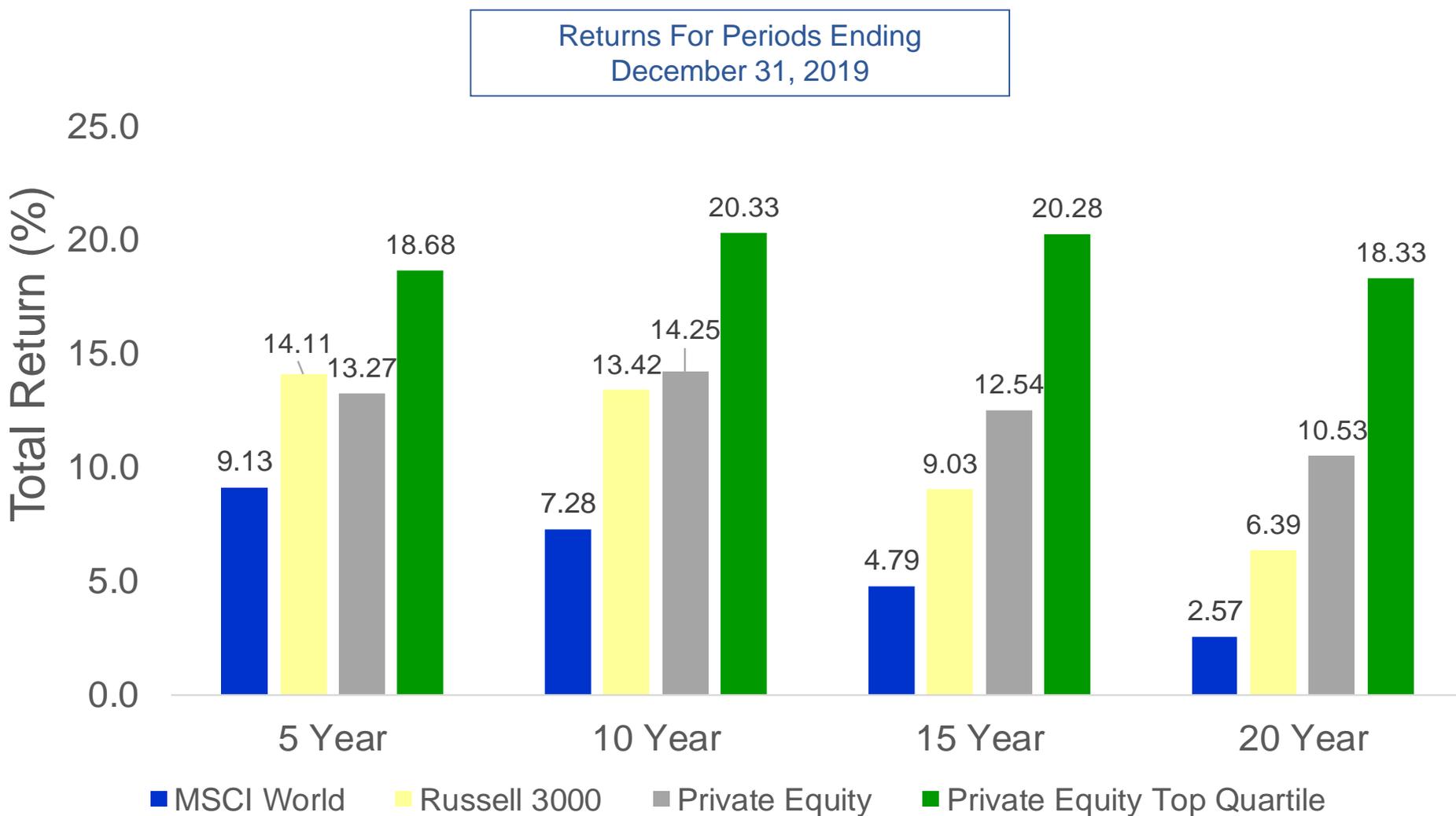
Emerging Market Equity Valuations



Global Equity Valuation Comparisons



Private Equity versus Public Equity

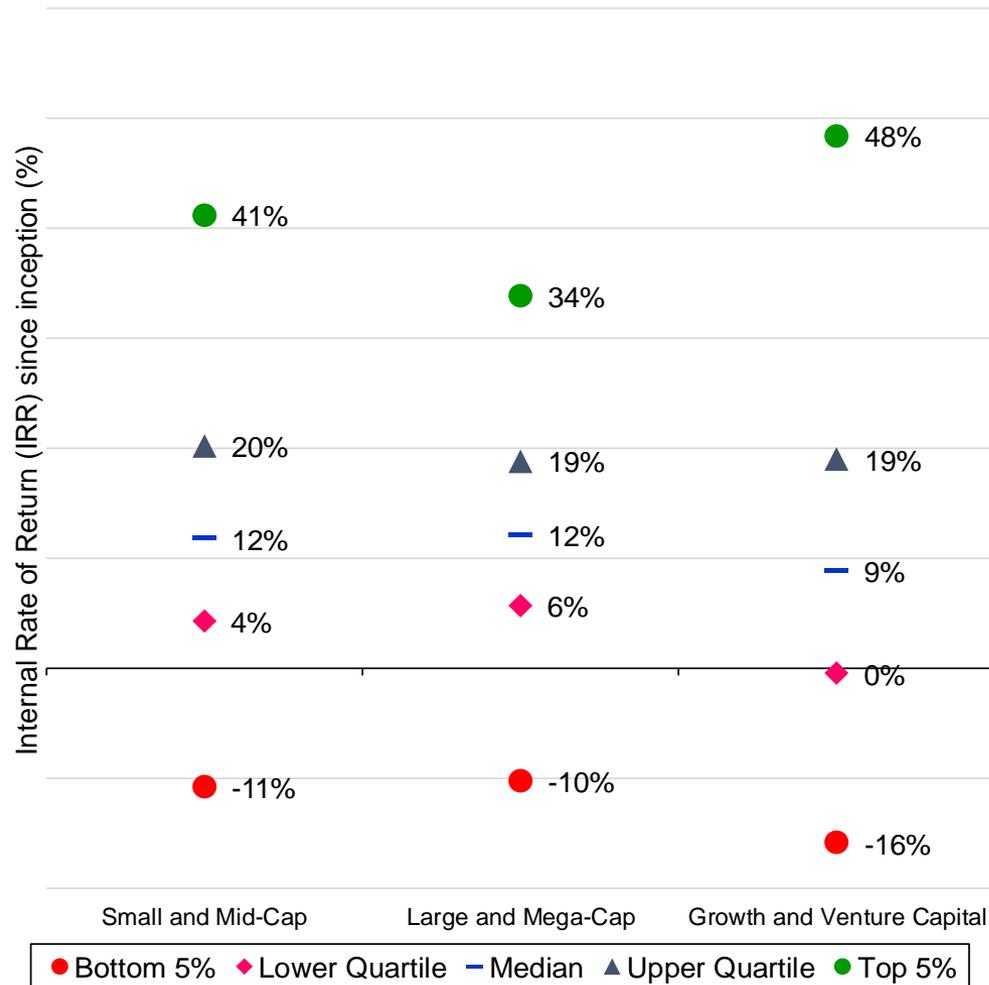


Note: Private Equity returns are global and include buyout, growth equity, and venture

Source: Cambridge and Aksia TorreyCove

There Has Been A Wide Range of Returns in Private Equity

Private Equity Quartile Returns Since Inception

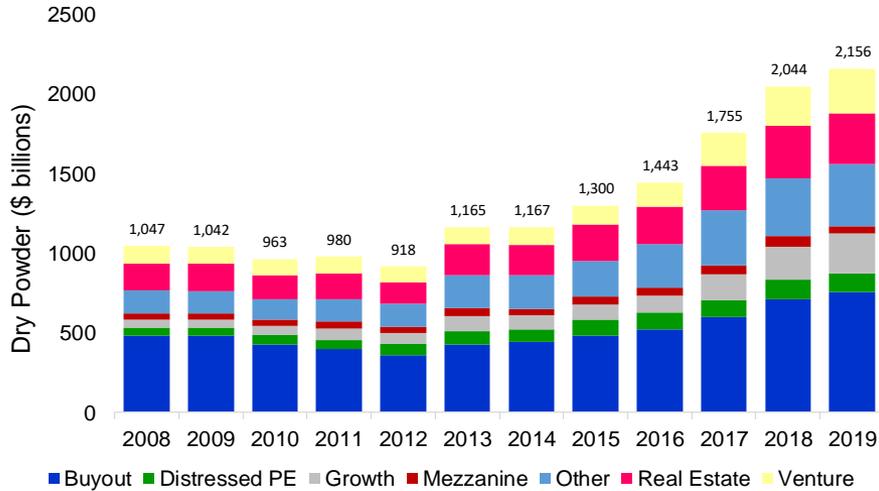


Private Equity Quartile Returns By Vintage

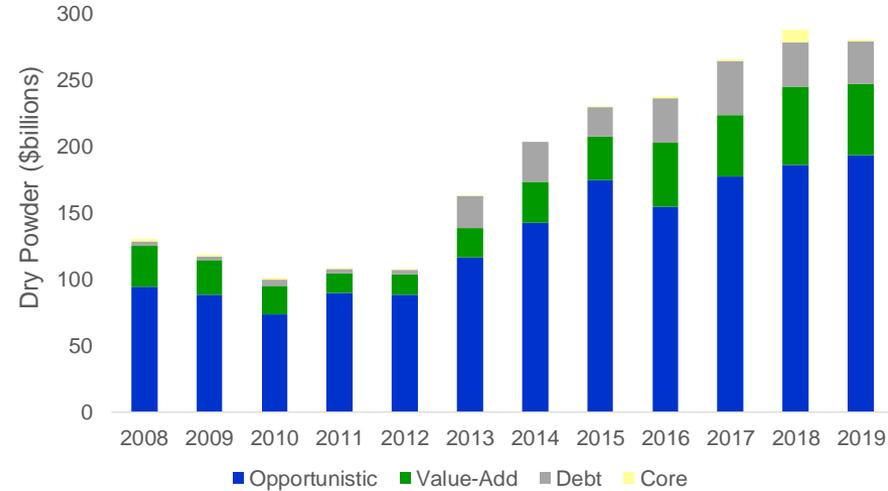
Vintage Year	Median-Lower Spread	Upper-Median Spread	Total Spread
2000	8.0%	8.9%	16.8%
2001	8.6%	11.3%	19.9%
2002	9.0%	12.0%	21.0%
2003	8.5%	8.5%	17.0%
2004	7.7%	6.7%	14.4%
2005	6.1%	5.1%	11.2%
2006	6.7%	5.8%	12.6%
2007	5.8%	5.6%	11.4%
2008	5.9%	7.7%	13.6%
2009	6.6%	7.4%	14.0%
2010	7.7%	8.8%	16.5%
2011	6.2%	6.2%	12.4%
2012	8.1%	6.2%	14.3%
2013	5.6%	6.5%	12.1%

Private Market Dry Powder and Fundamentals

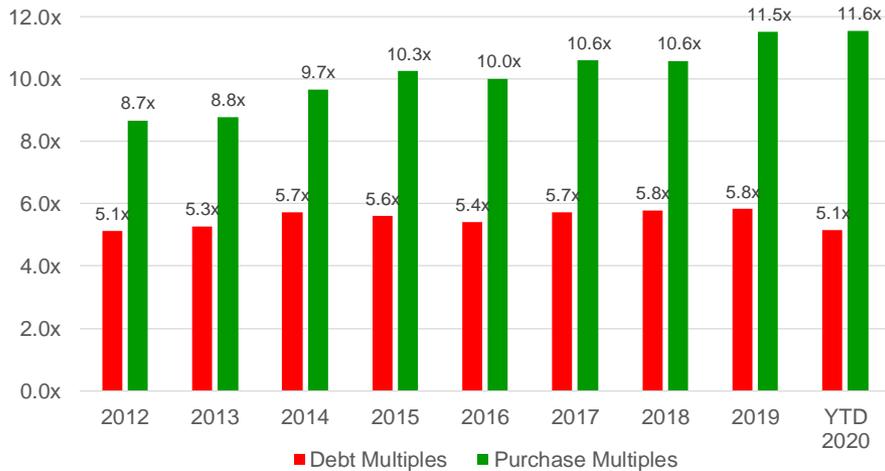
Private Equity Dry Powder



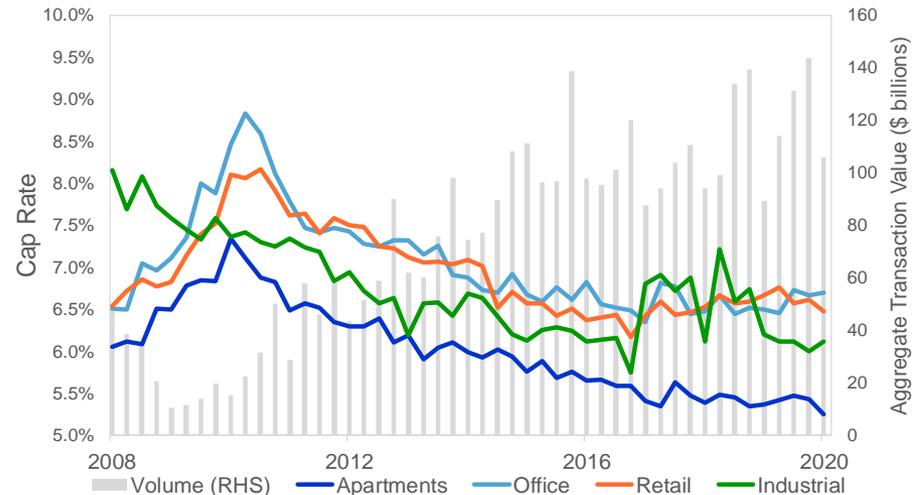
Real Estate Dry Powder



Private Equity Leverage and Purchase Multiples

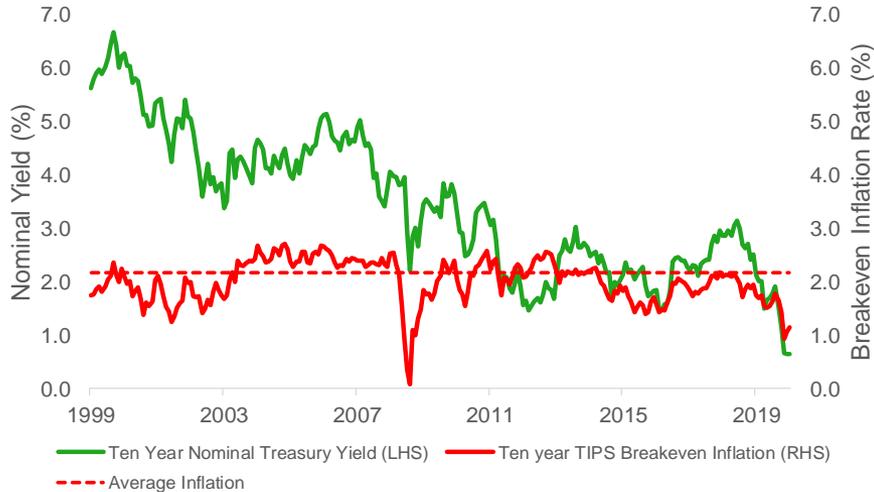


Real Estate Cap Rates



U.S. Treasury and Credit Market Valuations

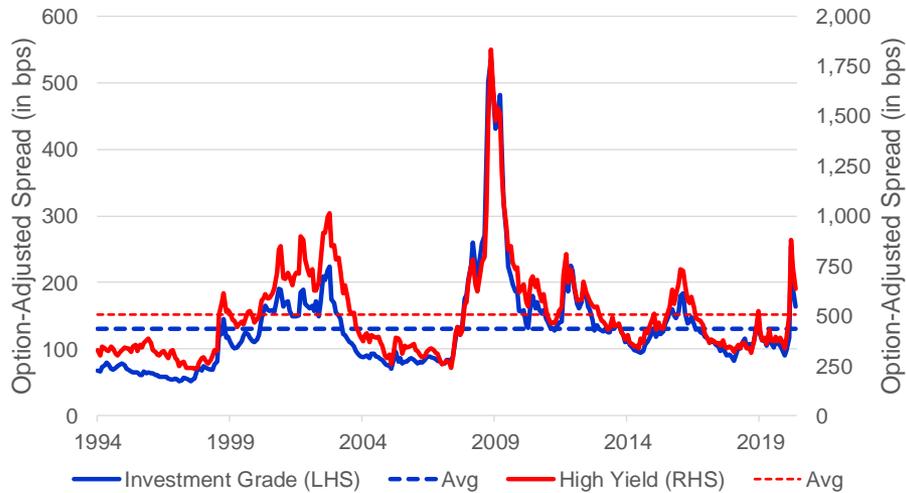
Ten Year Nominal Yields and TIPS Breakeven Inflation



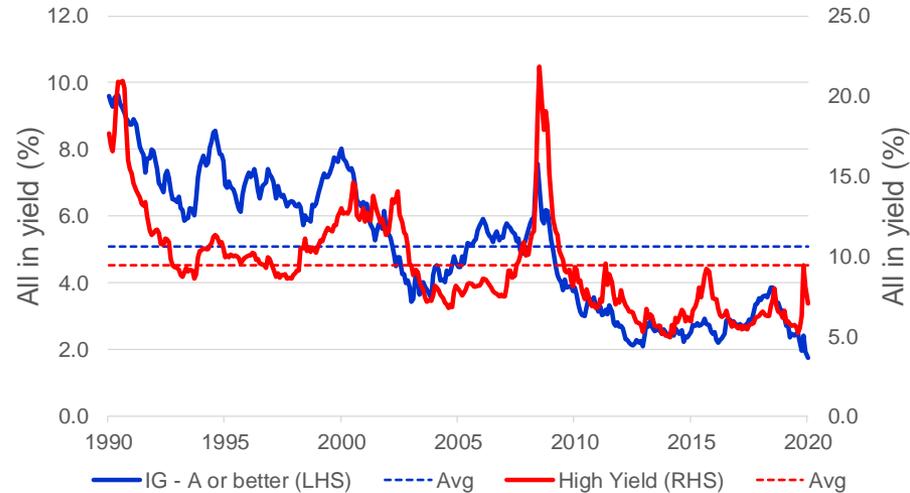
Steepness of the U.S. Treasury Curve



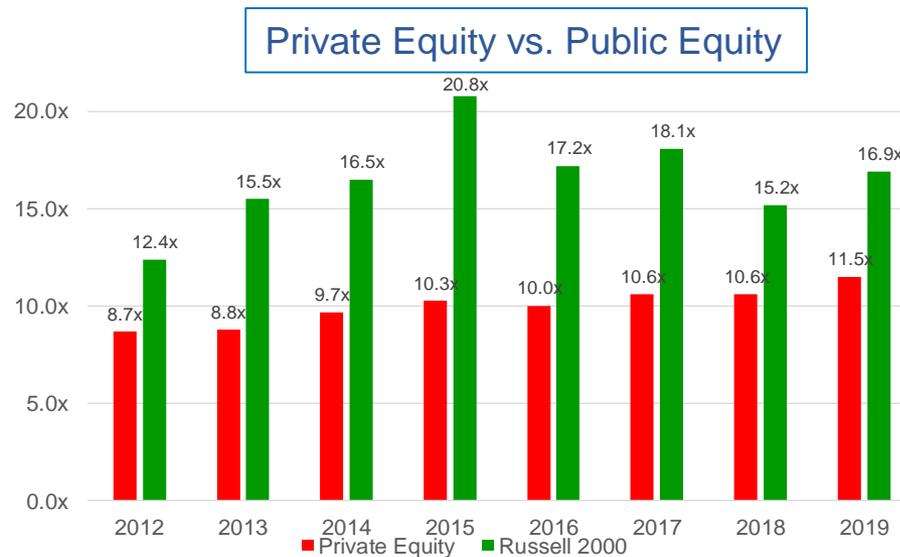
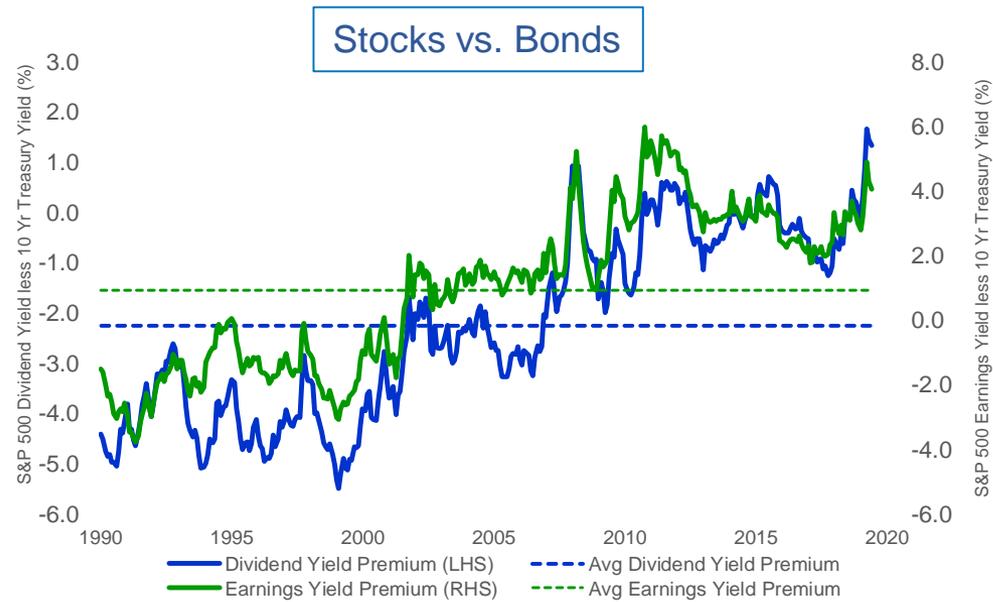
Credit Spreads Are Above Historical Averages



Credit Yields Are Below Historical Averages



Cross Sector Valuation Analysis



Asset Allocation Recommendation

	Portfolio Expected Return	6.52%	6.72%			
	Portfolio Volatility	10.79%	11.05%			
	<u>Return per unit of Risk</u>	0.605	0.608			
		Current Target Asset Allocation	Recommended Target Asset Allocation	Proposed Ranges	Proposed Benchmarks	Proposed Benchmark Weights
	GLOBAL GROWTH	59.00%	59.00%			
1	U.S. Equity	28.00%	27.00%	22-32%	MSCI USA IMI	28.00%
2	Non-U.S. Developed Market Equity	12.50%	13.50%	11-16%	MSCI EAFE + Canada (ex-prohibited)	13.50%
3	Emerging Market Equity	6.50%	5.50%	3-8%	MSCI Emerging Markets (ex-prohibited)	5.50%
4	Private Equity	12.00%	13.00%	10-16%	Cambridge Associates Buyouts, Growth, Distressed for Control, Subordinated Debt and Credit (one-quarter lag)	12.00%
	REAL RETURN	10.00%	11.00%			
5	Real Assets	2.50%	3.00%	1-5%	NCREIF ODCE (one-quarter lag)	3.00%
6	Real Estate	7.50%	8.00%	5-11%	Cambridge Private Equity Energy, Upstream Energy & Royalties & Infrastructure, Timber (one-quarter lag)	7.00%
	INCOME	18.00%	18.00%			
7	High Yield	2.00%	2.00%	1-5%	Bloomberg Barclays U.S. High Yield 2% Issuer Cap Index	2.00%
8	Private Credit	6.00%	8.00%	5-11%	Bloomberg Barclays U.S. Corp High Yield Index (one-month lag) + 100 bps	7.00%
9	Investment Grade Credit	10.00%	8.00%	5-11%	Bloomberg Barclays U.S. Credit Index, A or better	9.00%
	DEFENSIVE	13.00%	12.00%			
10	Cash Equivalents	5.00%	4.00%	3-7%	91-day T-Bills	5.00%
11	U.S. Treasuries	5.00%	5.00%	3-8%	Bloomberg Barclays U.S. Treasury Index	5.00%
12	Risk Mitigation Strategies	3.00%	3.00%	1-6%	91-day T-Bills +300 bps	3.00%
	Alternative Investment Program	31.00%	35.00%			
	Return Seeking	77.00%	80.00%			
	Defensive	23.00%	20.00%			
	Total	100.00%	100.00%			