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Not Expecting to Hit Your Expected Return? Cash Is the Culprit

September 18, 2019

In recent years, many public and corporate pension plans have lowered their official Expected Return on Assets (EROA).[1] One might think it would now be easier to hit those hoped-for returns, but if anything, it has become even harder.

The EROA is a goal that is only weakly influenced by real life investing conditions. In contrast, the portfolio's *actual* expected return is very much of this world, and the world has changed. It's not that we are "late cycle," or that valuations are high (though that may be and may matter); it's that the yield on cash[2] has fallen — a lot — and as a consequence, expected total returns have fallen, too.

So while pension boards have modestly dropped their discount rates in response to what they perceived to be a low return environment, return expectations have dropped a lot more. The seemingly softer EROA target has really become a much tougher one.

Don't Confuse EROA with "Expected Return"

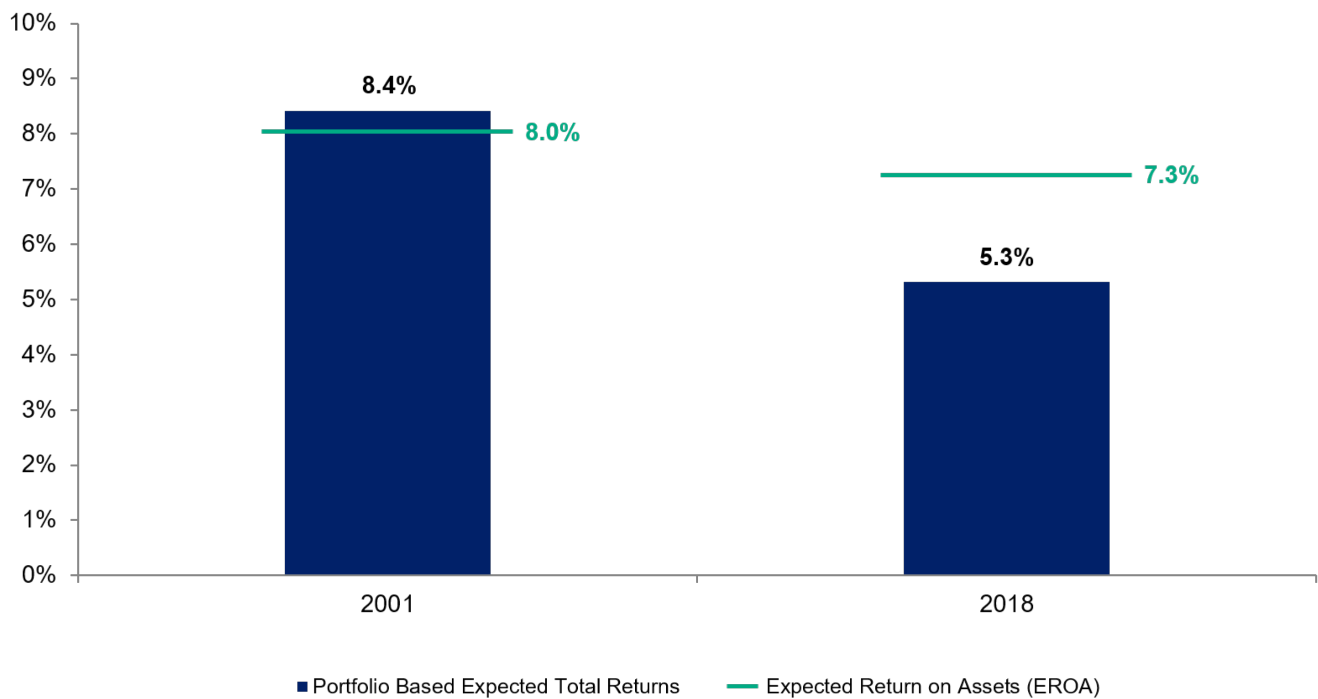
The EROA is important to determine plan liability values and required contributions. It has a lot of real-world impact, so it matters, but this "Expected Return" is not *the* expected return. The EROA is commonly set by policymakers or boards, taking into account political considerations, funding capabilities and, sometimes, corporate finance considerations. The true "expected return" on assets is the weighted average of the individual expected returns of each asset class in the portfolio. Once an asset allocation is determined, its expected return is not subject to political diktat, budget realities, or accounting needs.

The following analysis focuses on public plans, but the challenges are similar for corporate plans.

If we go back to 2001, a much simpler time for plan sponsors, the average U.S. public pension discount rate (EROA) was 8.0%.[3] But in our estimation, their asset allocation-based "expected" return was 8.4%.[4] Today, on the other hand, EROA across 190 U.S. public plans averages 7.3%.[5] But we estimate the "expected" return of those portfolios to be only 5.3%.[6]

cookie information

Figure 1: U.S. Pension Expected Return on Assets and Portfolio "Expected Return"



Source: AQR, Public Plans Data (PPD) Center for Retirement Research at Boston College, Center for State and Local Government Excellence, and National Association of State Retirement Administrators. The PPD contains publicly-available, plan-level financial information for 190 state and local retirement systems across the United States. All data is sourced directly from the website or is calculated using data downloaded from the website spanning from 2001 to 2018. National Expected Return on Assets (EROA) is weighted by plan size. Portfolio based expected total returns based on the asset weighted asset allocation public plans and capital market assumptions described in the disclosures. For illustrative purposes only. Hypothetical data has inherent limitations some of which are described in the disclosures. There is no guarantee that these expected returns will be achieved.

It is certainly harder to achieve a 7.3% return with a 5.3% allocation than it is to achieve an 8.0% return with an 8.4% allocation. But it gets even harder when you consider that fund managers are already working those assets more aggressively.

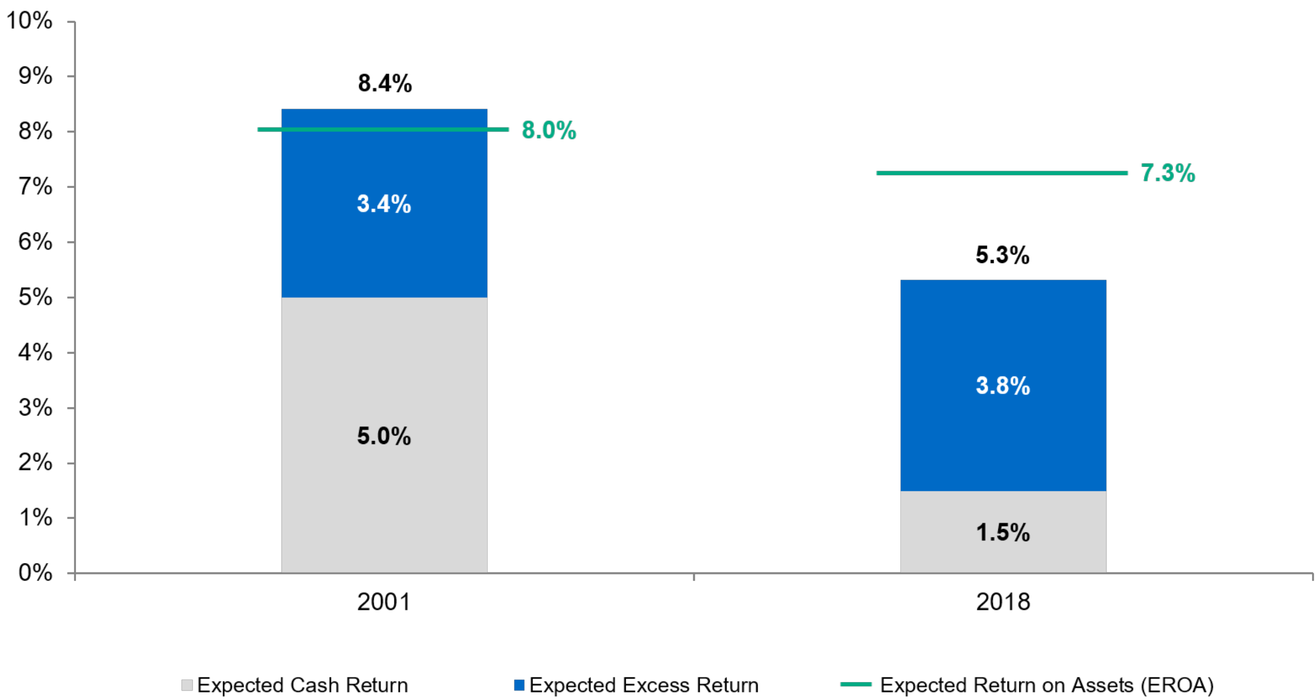
What Really Matters Is the Excess Return over Cash

Central bank changes to the cash rate might induce asset prices to go up or down, but there's little evidence or theory that the mere level of the cash rate affects assets' return premium over it.

Unless we have strong market timing views, we have little reason to believe that the excess return over cash should be any different when the expected risk-free return is 5.0% (2001) than when it is 1.5% (today).[7] If you held your asset allocation steady, you should expect to earn about 3.5% less today (the difference between 5.0% and 1.5%) than you did nearly 20 years ago. That is, the fact that we expect to be in a low rate environment for the foreseeable future is enough to explain why we expect to be in a lower portfolio return environment.

Now it's true that asset allocation has evolved over the last twenty years. Pension funds have made changes that produce a higher expected return over cash today than in 2001, but that is not enough. Funds have increased their risk, helping to add about 0.4% to expected return (in our estimation), and increasing their expected return over cash from 3.4% to 3.8%.[8] So, including the expected cash return, total return expectations have gone from 8.4% down to 5.3%. With EROA falling only 0.7% over that same time, we've gone from expecting to beat the target to expecting to fall well short (See Figure 2.)

Figure 2: U.S. Pension EROA and Portfolio "Expected Return" (Cash and Excess)



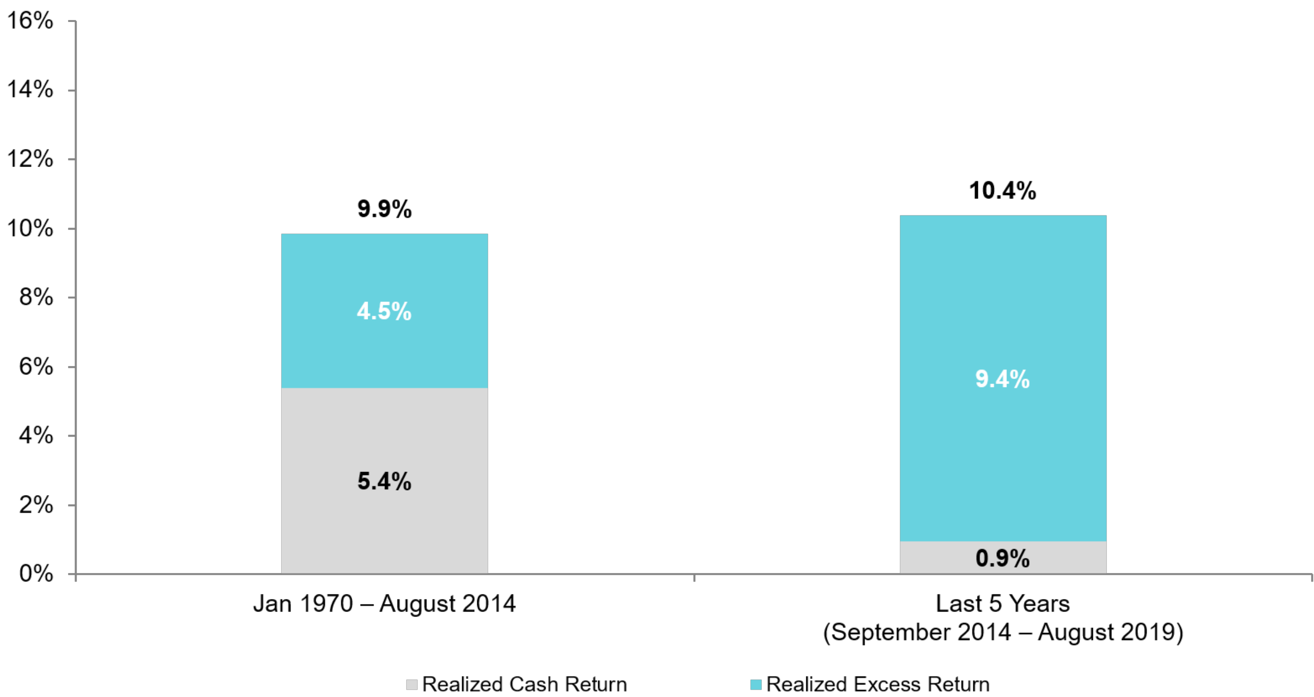
Source: AQR, Public Plans Data (PPD), Bloomberg. Center for Retirement Research at Boston College, Center for State and Local Government Excellence, and National Association of State Retirement Administrators. The PPD contains publicly available plan-level financial information for 190 state and local retirement systems across the United States. All data sourced directly from the website or is calculated using data downloaded from the website spanning from 2001 to 2018. National Expected Return on Assets (EROA) is weighted by plan size. Portfolio based expected total returns based on the asset weighted asset allocation public plans and capital market assumptions described in the disclosures. Estimate for expected cash return is based on average 1-year U.S. Treasury rates zero to nine years forward on January 1st 2001 and August 20th 2019. For illustrative purposes only. Hypothetical data has inherent limitations some of which are described in the disclosures. There is no guarantee that these expected returns will be achieved.

In short: in 2001 pensions needed 3.0% over cash to reach their EROA; but today they need 5.8%. Pretty clear which one is harder.

Recent Equity Returns Have Masked This Challenge

The drop in EROA and cash returns has occurred while, in real life, recent realized excess returns over cash for equities have been very high. That has largely hidden the real detrimental impact of lower cash rates on expected total returns.

There is little reason to expect that the equity return premium over cash should stay so spectacularly high just because cash returns are low (Figure 3.) Compared to a nearly fifty-year average equity risk premium over cash of 4.5%, the last five years have given us more than double that, with an average risk premium of 9.4%.[9]



Source: AQR, Bloomberg. S&P 500 Index and ICE BofA Merrill Lynch 3-Month U.S. Treasury Bill Index returns from January 1970 to August 2019.

If equity excess returns come "back to normal" in an environment in which cash remains this low, then the challenge facing CIOs and staffs will be far more apparent than it has been in recent years.

Life for plan sponsors isn't easy. Twenty years ago the chances that public pensions would hit their long-term target were over 50%.[10] Today, we think those changes are closer to 30%.[11] That's with lower EROAs and portfolios designed to earn higher excess returns. The culprit is cash, which can't be controlled (at least not by investors!) That's not to say that nothing can be done — boards could continue to reduce Expected Returns and CIOs could continue to improve their portfolios around the margins. They'll have to if they expect to meet their expectations.

Charles E.F. Millard is a consultant to AQR Capital Management, LLC.

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[1] Source: Public Plans Data (PPD). 2001-2018. Center for Retirement Research at Boston College, Center for State and Local Government Excellence, and National Association of State Retirement Administrators.

[2] Source: Bloomberg. Yield on cash based on 3-month U.S. Treasury Bills.

[3] Source: Please see footnote 1.

[4] Source: AQR, Public Plans Data (PPD). 2001-2018. Center for Retirement Research at Boston College, Center for State and Local Government Excellence, and National Association of State Retirement Administrators. Portfolio based expected total returns based on the asset weighted asset allocation public plans and capital market assumptions described in the disclosures. For illustrative purposes only. Hypothetical data has inherent limitations some of which are described in the disclosures. There is no guarantee that these expected returns will be achieved.

[5] Source: Please see footnote 1.

[6] Source: Please see footnote 4.

[7] Source: AQR, Bloomberg. Estimate for expected cash return is based on average 1-year U.S. Treasury rates zero to nine years forward on January 1, 2001 and August 20, 2019.

[8] Source: Please see footnote 4.

[9] Source: AQR, Bloomberg. S&P 500 Index and ICE BofA Merrill Lynch 3-Month U.S. Treasury Bill Index returns from January 1970 to August 2019.

[10] Source: Please see footnote 4.

[11] Source: Please see footnote 4.

Disclosures

Fiscal Year Allocation:

	Equities	Private Equity	Real Estate	Commodities	Fixed Income	Hedge Funds	Misc. Alternatives	Cash	Other
2001	57.7%	3.6%	4.4%	0.0%	31.5%	0.3%	0.4%	1.8%	0.1%
2018	48.7%	9.0%	8.4%	2.4%	21.5%	6.4%	1.4%	1.8%	0.3%

Capital Market Assumptions:

	Equities	Private Equity	Real Estate	Commodities	Fixed Income	Hedge Funds	Misc. Alternatives	Other
Volatility	15.0%	23.0%	20.0%	16.0%	3.0%	8.0%	8.0%	0.5%
Sharpe Ratio	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Excess Return	4.5%	6.9%	6.0%	4.8%	0.9%	2.4%	2.4%	0.2%

Asset weighted asset allocation for U.S. public plans sourced from Public Plans Database (PPD). To estimate volatilities, we use a rounded (to the nearest full number, except for cash, which is rounded to the nearest decimal) average of the realized since 1990 and since 2008 volatilities of the following indices: For Equities, we use MSCI World Index. For Private Equity, we use 1.2x Levered Russell 2000 Index. For Real Estate, we use the FTSE/EPRA NAREIT All REITs Index. For Commodities, we use the Bloomberg Commodity Index. For Fixed Income, we use the Barclays U.S. Aggregate. For Hedge Funds, we use the HFRI Fund Weighted Composite Index. For Cash, we use the ICE BofA BofAML US 3 Month Treasury Bill Index.

We assume a constant long-term Sharpe Ratio of 0.3 across asset classes to calculate excess returns.

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