

Breaking Through Performance Barriers

By Kerrie Lloyd

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The CFA Institute recently published a groundbreaking paper¹ – “Ensemble Active Management (EAM) – Taming Toxic Tails” -- that is gaining widespread attention among Institutional CIOs because it introduces a new approach to active management that reflects an insightful integration of Machine Learning, a subset of artificial intelligence, and active investment management.

But as the authors state, “EAM is not a strategy, algorithm, or overlay”. It is not another attempt to use AI to screen 10,000 stock variables a day to improve stock picking. Rather, it is a new approach to portfolio construction, and appears poised to transform the *entire active investment management industry*.

Why should institutional CIOs care? Because the need to improve investment returns without taking on higher, or exotic, risk has never been greater. A study by Milliman from October of 2017² showed that the aggregate Funded Ratio of public pension plans as of June 30, 2017 was estimated to be only 70.7%, and this represented a “sharp rebound” from 67.7% in 2016. As we know, there are only two ways to improve the funded status of a plan: improve returns or increase contributions. Since the latter option is such a terrible outcome, any fresh ideas to improve returns is a welcome conversation to have with plan sponsors and their advisors.

In a cogent and concise manner, the authors of the CFA Paper provide insight into a pervasive portfolio design conflict that has bedeviled investment managers for decades. Risk management protocols, which are necessary in today's environment, have impaired the industry from delivering on its mandate to outperform the market after fees. Amazingly, this design conflict has hidden in the blind spot of the industry for years.

The 4-point message of the paper is simple and intuitive:

Point one: Portfolio managers create their potential for outperformance through their *high conviction best ideas*. These are the 15-25 stocks that the manager has identified as having the best opportunity for outperformance. Managers allocate a portion of their portfolios to these top holdings while also allocating meaningful benchmark positions as a risk management tool. The article refers to these top holdings as the ‘Alpha Engine’.

Point two: The very act of selecting stocks with the intent to outperform creates a risk factor that the manager is required to address: the potential of relative underperformance. A severe relative underperformance event is referred to as a ‘Toxic Tail’ event in the article. Toxic Tails put both the end investor and the manager in harm's way, and need to be successfully eliminated.

Point three: The industry's standard risk management tool to eliminate Toxic Tails is to build out a large number of stocks that are not intended to drive outperformance, but rather for relative tail risk management. Research shows that the average number of holdings for US equity portfolios is close to 100, implying that these risk management positions are roughly 75 stocks (the holdings in excess of the high conviction best ideas). They are referred to as the ‘Beta Anchor’. Research also shows that the Beta Anchor is typically 60-75% of an active portfolio.

While the Beta Anchor is a highly effective risk management tool for Toxic Tails, it also comes with a performance penalty. As the Beta Anchor grows, it squeezes down the portion of the portfolio available for the Alpha Engine. For example, a Beta Anchor at 75% of a portfolio means that Alpha Engine is only 25% of the portfolio, and therefore three-quarters of the alpha potential of the PM's top stock selections have been permanently lost.

Point four: Ensemble Active Management does what the industry could have targeted years ago – function as a *replacement risk management tool for Toxic Tails*. It potentially eliminates the risk of Toxic Tails on par with the Beta Anchor, but does not carry the performance penalty of the Beta Anchor. In fact, the research and theory in the CFA article suggests that it actually enhances performance.

EAM is a quantitative solution that captures high conviction stock ideas that are identified by combining the Alpha Engines (not the Beta Anchors) from multiple, independent investment strategies. It uses the Machine Learning discipline of Ensemble Methods to identify those stocks with the highest level of consensus agreement among the various Alpha Engines, and creates a new ‘super-charged’ Alpha Engine that can exist without a Beta Anchor.

The risk management benefit arises from integrating the Alpha Engines of multiple investment strategies, which effectively diversifies the biases unique to each individual strategy. This approach can be utilized as an alternative to what is normally referred to in the institutional market as a multi-manager approach. Rather than at the manager level, EAM creates diversification at the investment process level. This added layer of diversification functions the way that diversification should – by reducing risk. Using the output created by this quantitative approach, an EAM Portfolio can theoretically be constructed as 100% Alpha Engine.

The CFA Paper provided useful data supporting the EAM concepts, while a separate but affiliated White Paper (*“Ensemble Active Management – the Next Evolution in Investment Management”*³) provides a massive data set that tests EAM concepts. The latter included the creation of 30,000 unique EAM portfolios, 165 million data points, and covered more than a decade of time. The results were exactly in line the expectations that had been built. EAM Portfolios:

- Outperformed the S&P 500 72% of rolling 1-year periods, with an average annual excess return of 3.4% (340 basis points);
- Achieved a 94% success rate versus the S&P 500 for rolling 3-year periods, with an average annual excess return of 3.8% (380 basis points).

Institutional investors have faced serious challenges in finding new and effective sources of return for their Funds for years now. Lower average annual returns from public markets, combined with historically low interest rates, have driven them to seek return from non-traditional asset classes, typically at a higher risk level relative to traditional asset classes. Ensemble Active Management could be an ideal application for institutional investors of all sizes and types.

The plans cited in the previously referenced Milliman study cover the retirement benefits of more than 25 million American workers. The unfunded liability of these plans as of June 30, 2017 was estimated to be an astounding \$1.4 Trillion. From my experience with plan sponsors, the negative implications of sub-par Funding Ratios are profound. For example, some states are facing downgrades in their bond ratings due to the unfunded liability in their state pension plans. A recent WSJ article by Sarah Krouse⁴ stated: *“Certain pension funds face the prospect of insolvency unless governments increase taxes, divert funds or persuade workers to relinquish money they are owed.”* And in what can only be described as ironic, many states have had an increase in salaries of teachers or other state employees, which immediately triggers an escalating increase in future benefit liabilities that can further reduce funding ratios.

Which is where EAM Portfolios come in. Based on the information provided, a typical EAM Portfolio has 40-50 stocks with a standard deviation 5%-7% greater than the benchmark, is completely liquid, has a fully transparent process, the fund’s custodian controls the assets, there are no derivatives, and all holdings are within the benchmark – an ideal profile for institutions. Equally attractive, an EAM Portfolio can potentially be

built and tested by nearly any Institutional Investor at low cost, and with virtually no adverse portfolio exposure.

For example, an EAM portfolio can be built (there are firms that can assist with this) and run that portfolio for 6-12 months. If it fails to live up to expectations, the EAM Portfolio can be easily converted into an index fund through a transfer in kind process at any time. Even a performance result at the tail end of the expectations (remember that EAM portfolios have an additional layer of diversification supporting risk management) should have a de minimis impact on the overall portfolio.

But if the EAM Portfolio is able to deliver excess returns versus the benchmark at a level even close to the White Paper's results (340bp annual excess return, superior Sharpe Ratios), then the Investor has found a new, persistent alpha source that can – and should – be expanded throughout their investment portfolio.

With the potential to dramatically increase returns and with a risk profile consistent with other public market asset classes, Ensemble Active Management could represent a way for Institutional Investors to solve their return challenges. Institutions would do well to embrace this opportunity as the most promising new investment idea to come along in decades. With such tremendous upside and little downside, if any, what do we have to lose?

¹Available at <https://blogs.cfainstitute.org/investor/2019/01/31/ensemble-active-management-eam-taming-toxic-tails/>.

²Rebecca A. Sielman, Milliman, "2017 Public Pension Funding Study", October 2017.

³Currently available for downloading free of charge at ensembleactivemanagement.com.

⁴Sarah Krouse, WSJ, "The Pension Hole for U.S. Cities and States Is the Size of Germany's Economy", July 30, 2018.

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Kerrie earned a Bachelor of Arts degree in Business with an emphasis in Finance from California State University at Fullerton where she also joined the National Financial Management Honors Society. In addition, she is a Doctor of Natural Health, PhD, and she is certified in Pivotal Response Therapy through the Koegel Autism Center at UC Santa Barbara.