

UNIVERSA MEMO

This is an internal memo, intended solely for Universa current and certain prospective institutional clients

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In my new role at Universa—after spending five years at CalPERS with a senior role in asset allocation—my hope is to provide meaningful insight from my experiences at the largest public pension plan. At CalPERS I led the implementation and scale-up of a large tail-risk hedging program, with Universa at its core. The primary objective of investing in Universa was to provide convex tail-risk protection not found with other approaches to risk mitigation. This measure was deemed to be a high priority by the former CalPERS CIO as the funded status had never fully recovered despite the decade-long bull market rally.

It is important for me to rebut what has been claimed in public by no less than the new CalPERS CIO that their conventional diversifying risk mitigation strategy has been less costly, and thus more effective, than Universa’s “explicit, options-based” convex risk mitigation strategy. This is a fairly common claim, not particularly unique to him, and neither Universa, nor I, take offense from this. It would not typically be our practice to respond to a public statement of this sort by a former client (redeeming shortly after the new CIO arrived). However, the public nature of the comment, and the hope of preventing others from succumbing to the same common pitfalls, has compelled me to write this memo.

We at Universa view this as a wonderful pedagogical opportunity, as the CalPERS claim provides a highly accessible, real-world case study for Universa. It is a good example of how smart people can get risk mitigation so wrong. I am hopeful that this can help, as, in the words of Mark Twain, “few things are harder to put up with than the annoyance of a good example.”

The term risk mitigation is a broad concept and, unfortunately, so much that is said about it is spin—or a mere narrative—conveying style over substance. At Universa we always aim to put pen to paper wherever we can to exactly determine where risk mitigation value is being added and where it is not. As Universa CIO Mark Spitznagel has written repeatedly, the case for the effectiveness of any risk mitigation strategy must always start

and end with the investors' total portfolio compound returns, and the "portfolio effect" thereon, as Universa has shown in real time for over 12 years.

Mind you, none of this analysis requires any fancy metrics, dubious assumptions, or hypothetical returns. We use the word "hypothetical" to describe the portfolios below solely because we are combining actual real-world returns, specifically Universa's returns, the SPX, and the Barclays Aggregate Bond Index, into sample portfolios in order to examine different portfolio effects, not because of any retrospective parameters. All that is required is to (1) form "risk mitigated portfolios" based on specific risk mitigation strategies, (2) objectively observe the relative magnitudes of risk in these portfolios (based on the magnitudes of their realized losses), and (3) look at the compound annual growth rates (CAGRs) of these portfolios.

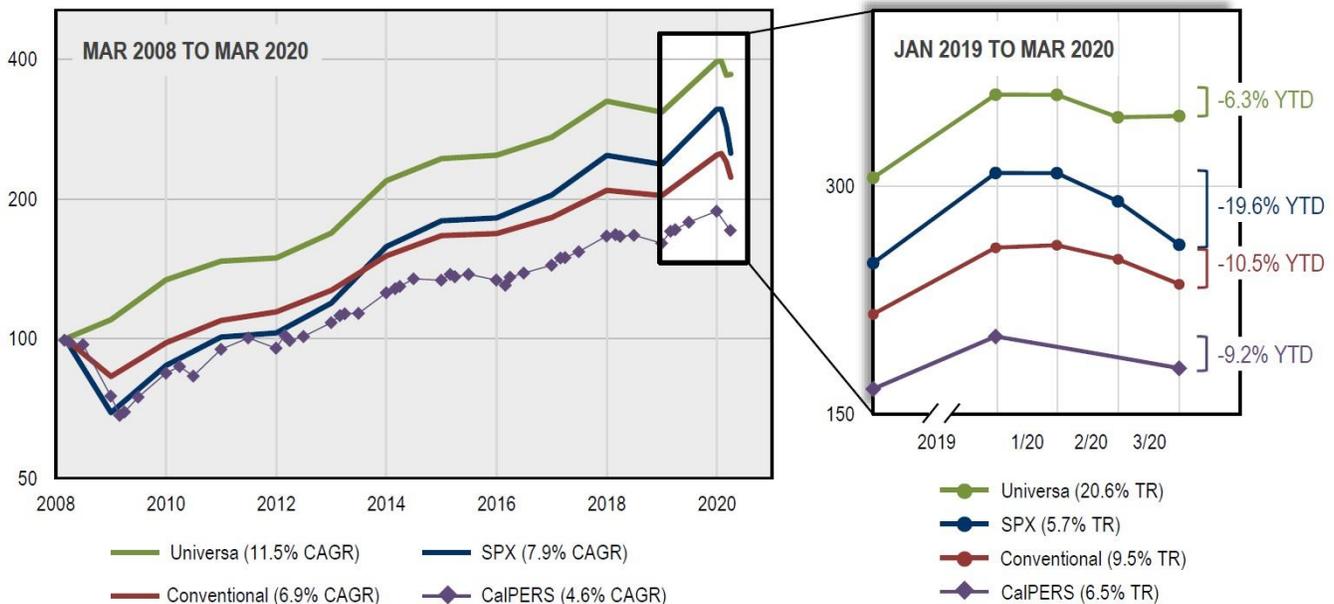
Effective risk mitigation is all about lowering losses in a portfolio and, as a direct causal result, raising the rate of compounding, or, equivalently, raising the terminal wealth, in that portfolio (the "portfolio effect"). Indeed, if lowering losses in a portfolio did not raise its terminal wealth, it must have cost too much to do so. That raises the obvious question as to what was the point? This objective of risk mitigation is that much more important by the necessity of underfunded pensions, such as CalPERS, to achieve a required rate of return in order to fund future liabilities. (CalPERS's current required rate of return is 7%.) **Pensioners' benefits are based on their funds' terminal wealth. Their ability to maximize that as well as, by extension, their probability of meeting their benchmarks, has been driven by their sensitivity to large drawdowns, not volatility, not Sharpe ratios.**

As always, the performance of the hypothetical Universa risk mitigated portfolio is comprised of 3.33% Universa tail hedge performance (monthly administrator-provided net returns, expressed as returns on a standardized capital investment) and 96.67% SPX (a realistic proxy for the systematic risk being mitigated). This is the same fully hedged weighting that Universa has recommended for over 12 years since our very beginning.

The CalPERS hypothetical risk mitigated portfolio is represented by a 60/40 portfolio, with 60% of the assets invested in SPX and 40% invested in Barclays US Aggregate Bond Index. The 60/40 portfolio is a standard reference benchmark against which many US pensions compare performance and is an effective proxy for the typical balanced allocation between growth and income assets used to achieve diversification. In fact, 60/40 has been the mean-variance optimal public-asset portfolio with a minimum return constraint of 7.5%—the typical required return of pensions—from 2010 to present. This will be referred to as the "conventional" risk mitigated portfolio.

Both portfolios are mechanically rebalanced annually.

COMPARING RISK MITIGATION STRATEGIES



To be fair, we must point out that CalPERS alludes to further nuances of diversification in its portfolio, including an allocation to “factor-weighted equities.” Although the precise nature of that allocation is undisclosed, a passive investment in low volatility stocks might be involved. They also diversify across both public and private asset classes. (I am using only publicly available information in this memo.) While in this case study we are using the “conventional” risk mitigated portfolio as our CalPERS proxy, we do not want to be accused of a strawman argument. Therefore, we also have included on the chart for reference actual CalPERS portfolio return data points (using data that CalPERS provides on its website). **Visibly, CalPERS has not been able to outperform the proxy that we are using historically.**

As the chart clearly shows, the conventional proxy portfolio did not demonstrate much in the way of value-added risk mitigation. In fact, over this 12-year horizon, it demonstrated some destruction of value, presumably in the name of risk mitigation. Risk mitigation was indeed provided in 2020 YTD, when the conventional portfolio lost only 10.5%, rather than the 19.6% loss in the unhedged SPX. Similar risk mitigation was also provided in 2008, when it lost only 17.1% compared to the 30.7% loss in the SPX. (Note also that the “\$11 billion savings” touted by CalPERS is undoubtedly an example of this type of accounting. The veracity of that claim can be confirmed only if the details of the calculations are made public. As it stands, the claimed savings represents less than 3% of the peak value of the fund and without evidence that it was monetized it may prove to be nothing more than an ephemeral gain.)

Nevertheless, reduction in drawdown achieved by a particular approach to risk mitigation at a single moment in time is just one measure of effectiveness and there remains a crucial question: **But at what cost?**

Over the total 12 years observed, **the conventional portfolio CAGR lagged the SPX CAGR by 1% (during an historic rally in bonds), which translates to a 11.3% loss in terminal wealth.** This means that any claim of effective risk mitigation is false. This is typical of Modern Portfolio Theory: by lowering the “risk” of a portfolio through diversification, at the expense of the portfolio’s CAGR, something productive is assumed to have been accomplished. What, one may ask? For most pensions, there has been no answer to that question.

On the other hand, the Universa tail hedge has demonstrably added tremendous value to its risk mitigated portfolio by lowering risk, observable in 2008 and 2020 YTD when the portfolio returns were +9.9% and -6.3%, respectively. Universa’s returns plainly show that **this is most definitely not a comparison between two portfolios with similar risk, as Universa’s has been much lower.**

Just as important, Universa’s risk mitigation also cost relatively little to employ. The benefit outweighed the cost; thus, **the Universa risk mitigated portfolio CAGR bested the SPX CAGR by 3.6% over the total 12 years observed, which translates to a 47.9% gain in terminal wealth.** It arguably added more value than could have been realized in any other risk mitigation strategy, at least that we know of (including long-duration treasury bonds).

At the risk of focusing on short-term outcomes, we could look more closely at the results since 2019 (in the zoomed-in window). While the conventional portfolio did add risk mitigation value by dampening the drawdown (rising 9.5% versus the SPX’s 5.7% over the period), Universa’s “explicit, options-based” risk mitigation strategy far outperformed them both—rising 20.6% over the period. Notably, even in 2019 alone, the Universa risk mitigated portfolio outperformed—or *cost less than*—the conventional portfolio, rising 28.8% compared to 22.4%—or a 2.7% underperformance to the unhedged SPX (-1.69% from the tail hedge itself) compared to a 9.1% underperformance by the conventional portfolio. **Notice that such enormous underperformance costs like this in the conventional portfolio can be quite deceptive, just because all the component line items of the portfolio still experienced positive returns on the year. Nonetheless, they cost too much.** And because of such enormous underperformance costs, the conventional risk mitigation only managed to add value over certain short time horizons concurrent with market crashes, but not over longer horizons—meaning timing would have been necessary to benefit from it (a skill that we believe no one possesses).

No matter the time period examined, Universa’s risk mitigation was *decisively less costly and more effective* than the conventional risk mitigation.

All of this clearly demonstrates what makes a risk mitigation strategy effective: **how much protection is provided in bad markets versus how costly that protection is in good markets.** The typical mild diversifying strategies, such as in our conventional proxy portfolio, provide so little relative protection in bad markets. Large allocations to the strategy are required; because of that, the protection becomes an immense drag in good markets—what Mark Spitznagel calls “the plague of diworsification”. The totality of the payoff is what creates the portfolio effect.

It should be evident from this analysis that the conventional risk mitigation approach is unlikely to help pensions overcome their underfunding problems. **One might try to argue that Universa just got lucky in achieving our explicit risk mitigation goals over the 12 years and multiple crashes that occurred over our life-to-date, and that the conventional strategy could suddenly start working better. However, that would be an exceedingly flimsy statement to make (all the more so with interest rates where they are today).** One might even argue against Universa’s ability to help with the problem due to our inability to hedge *the entire risk* of a given pension. With an extremely convex hedge like Universa’s, an incremental allocation still moves the needle. There is no good reason to demand hedging *all or nothing*.

I hope this short case study has helped counter the perpetual narrative around diversifying risk mitigation strategies, with real facts. The takeaway is an unequivocal answer to the question of whether conventional diversifying strategies have added risk mitigation value: they have not. Will they in the future? Not if their history is any guide.

Important Disclosures and Other Information

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General Information Regarding Hypothetical and Other Performance Charts. Universa prepared the charts and figures in this presentation. They have not been reviewed or audited by an independent accountant or other independent testing firm. More detailed information regarding the manner in which the charts and figures were calculated is available on request. **Universa only managed the stand-alone Universa tail hedge (or “BSPP”) component of the “Universa Tail Hedge + SPX” or “Universa risk mitigated portfolio” hypothetical returns shown. Therefore, the performance results of the combined portfolio do not reflect Universa’s actual trading and may not reflect the impact that material economic and market factors may have had on Universa’s decision-making were it actually managing a combined strategy during those time periods. Any actual fund that Universa manages will invest in different economic conditions, during periods with different volatility and in different securities than those incorporated in the hypothetical and other performance charts shown. There is no representation that any fund that Universa actually manages will perform as the hypothetical or other performance charts indicate. An investor may lose all of its investment in a BSPP portfolio.**

Calculation of Performance of Various Risk Mitigated Portfolios. For the period from March 2008 through March 2020, the portfolio returns were based on hypothetical risk-mitigated portfolios pairing the S&P 500 Total Return Index and each risk mitigation strategy with the indicated weightings (rebalanced every calendar year end). Resulting annual performance figures were then tracked.

The stand-alone Universa tail hedge (or “BSPP”) component of the hypothetical returns on invested capital were calculated based on monthly administrator-provided actual return data (which is net of all fees and expenses) for a series of standard, representative investors through time, whose fund financial statements for each year through 2019 have also been audited. Universa then expressed these returns as annual returns on a standardized 10% of “BSPP Notional Amount” (or 3.33% of “BSPP Protection Size”) capital investment at the start of each year (to standardize across different historical preferences of capital funding among different accounts).

To account for the time needed to fully implement or wind down a BSPP portfolio, monthly administrator-provided return data has always included an incremental 3-month lag for investor-directed notional sizing increases (applying the average of any intra-month increase to the entire month), and any variations as appropriate, as well as for investor-directed notional reductions (applying the full reduction after 3 months on month-end, unless the notional reduction was full and Universa accelerated it as appropriate). Lastly, the BSPP returns from March 2008 through August 2008 were generated in a separately-managed account for which there are no administrator statements or audits. Therefore, the calculation conservatively assumes a 100% loss on invested capital over that entire time period.

Actual Performance Results for Individual BSPP Funds Differ. The actual BSPP performance results shown differ from the actual performance results for other BSPP clients during those periods. Clients may specify parameters for the BSPP strategy related to systematic risk-budgeting and profit-taking, which can also result in performance differences. Further, it can take several months for Universa to fully deploy the BSPP strategy for new BSPP funds (especially those with significant Notional Amounts or Protection Sizes), and thus the performance during the periods before full deployment of the strategy does not reflect a BSPP strategy’s performance when fully invested. In addition, any client can at any time request one or more of an adjustment to a Notional Amount or Protection Size, purchase or sale of individual positions in a BSPP portfolio, liquidation of an entire portfolio, or withdrawal of excess margin, and some clients have restricted lists that limit the securities in which Universa can invest on their behalf. These decisions by individual clients lead to significant differences in performance among client accounts and thus it is difficult to select any BSPP fund during those periods that accurately reflects the performance of the BSPP strategy (without the effect of individual client decision-making). Universa believes, however, that the performance shown is a fair representation of an actual BSPP client’s performance during the period shown. Monthly performance information of other client accounts is available on request from Universa.

CFTC-Required Disclosure re Hypothetical Performance. Universa only managed the BSPP component of the “Universa Tail Hedge + SPX” or “risk-mitigated portfolio” hypothetical returns shown. Therefore, the performance results of the combined portfolio are based on simulated or hypothetical performance results that have certain inherent limitations. Unlike the results in an actual performance record, these results do not represent actual trading. Also, because these trades have not actually been executed, these results may have under- or over-compensated for the impact, if any, of certain market factors, such as lack of liquidity. Simulated or hypothetical trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. No representation is being made that any account or fund will or is likely to achieve profits or losses similar to those being shown.

Comparisons to Other Risk Mitigation Strategies and SPX. Universa compares the hypothetical returns of a portfolio combining the SPX with the BSPP to the hypothetical returns of the SPX paired with other risk mitigation strategies solely for illustrative purposes; the investments in the BSPP strategy are entirely different from the investments in those other strategies. In addition, Universa’s BSPP clients are likely to compare the performance of a stand-alone investment in publicly-traded equities (for which the SPX is a proxy) with a paired investment in the SPX and the BSPP, so Universa includes the performance of the SPX as well in this presentation. The SPX is an unmanaged, capitalization-weighted index of the common stocks of 500 large U.S. companies designed to measure the performance of the broad U.S. economy. In contrast, the BSPP strategy invests in options, futures (including options thereon) and other instruments as well as short sales, and includes a component designed to profit during months in which the SPX experiences significant declines. The SPX’s performance reflects the reinvestment of interest, dividends and other earnings.

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