

# SUSTAINABLE WITHDRAWAL ANALYSIS



Many institutions face the difficult task of funding today's beneficiaries while still preserving sufficient reserves to meet the needs of future generations. This paper examines Mason's Sustainable Withdrawal Analysis, a proprietary tool designed to help institutions optimize their asset allocation and spending policies given their unique growth and payout objectives.

## The Origins of Our Analysis

In 2008, before the full onset of the Financial Crisis, our research department developed a series of risk level portfolios designed to provide greater insight into how well-diversified portfolios might perform over a range of investment environments reaching as far back as 1926. The returns of the portfolios supported the conclusion that when severe declines impacted world markets, rebounds tended to be fairly quick and robust. So, when the Financial Crisis began in earnest in the fall of 2008, we believed that staying the course was the best strategy.

However, many institutions reacted differently, reducing their risk assets and recalibrating their equity exposure going forward. As the value of their asset pools declined into 2009, many also questioned their payout policies and examined anew their optimal spending/allocation balances.

The analysis of the modeling puzzled us. While the correction of the Financial Crisis was extreme, it was not unprecedented. In fact, the markets had suffered similar corrections many times since 1926. Clearly something was wrong with commonly available Monte Carlo models which predicted this to be less than a one in a billion event.

## The Need for Better Modeling

Seeing first-hand the experience of institutions during and after the Financial Crisis helped us realize the need for a more accurate portfolio analysis tool. Such a tool could be adaptable to each institution's specific risk/return profile and spending needs and would help to answer pressing questions such as:

1. Is my spending or payout policy sustainable over my investment horizon?
2. How can I better understand and manage tradeoffs in terms of long-term returns and shorter-term drawdowns?
3. What portfolio allocation will optimize the likelihood of achieving our organizations goals and objectives?

Properly designed, the tool would enable institutional investors to review not only average and likely ranges of long-term investment results but also to examine how bad things might be over the shorter term. Nobody is comfortable during severe market declines and panics by their nature occur during periods of extreme stress. What the tool would allow investors to do is analyze the appropriate asset class mix which would balance downside risk during severe market declines with ultimate long-term tradeoffs. In effect, it would allow investors to really understand and manage their risk tolerance based on data, not emotion.

## The Sustainable Withdrawal Analysis

In 2009, we undertook a major project to build a sophisticated tool that would attempt to overcome the shortcomings of traditional Monte Carlo testing and satisfy institutions' needs for accurate and reliable asset allocation and spending policy analytics. The result was the Mason Sustainable Withdrawal Analysis.

Mason's Sustainable Withdrawal Analysis is a proprietary tool designed to help institutions optimize their asset allocation and spending policies given their growth and payout objectives. The model draws on long-term historical data stretching back to 1926 and can be customized to each organization's specific needs and circumstances.

The Sustainable Withdrawal Analysis is designed to test various asset allocation strategies by examining how each portfolio allocation would have performed over every 5-, 10-, 25- and 50-year period from December 31, 1925 through to the present. The period analyzed includes extreme events including the Great Depression, World War II, going off the gold standard, Watergate, the Vietnam war, and the list goes on.

This method of analysis differs from popular risk analysis tools such as the Monte Carlo Simulation by using actual market data instead of hypothetical probability distributions.

Indeed, the Sustainable Withdrawal Analysis relies on nearly a century of monthly returns adjusted for inflation that includes over seven million data points. While using real data is more complicated than using probability assumptions, the knowledge and insights gained from analyzing the actual experiences of multiple generations of investors can be more accurate as a predictive tool.

### A Brief Look at Some Results

The initial version of our Sustainable Withdrawal Analysis examined actual portfolio success rates over the rolling 5-, 10-, 25-, and 50-year periods from 1926 to 2009. By including all relevant rolling periods, it provided a robust understanding of how different diversified portfolios responded through a multitude of market environments.

Prior to 2009, it was common for Mason's endowment clients to invest in a broadly diversified 65% equity-35% fixed income portfolio. After reviewing the range of historical outcomes, however, most endowments chose to move from a 65%-35% portfolio to a 77%-23% portfolio. On the surface, such a strategy would seem riskier. But what we found is the higher proportion of equities led to less long-term risk, provided the portfolio was well diversified. The output of our model also helped investors to understand shorter-term declines and to feel more confident in their ability to weather them.

### Important General Findings

The Sustainable Withdrawal Analysis provides critical insight into the connection between asset allocation, risk and payout rates, and clear direction for optimizing the balance of these elements. Model findings can and should be customized for each institution's unique circumstances. However, having run the model for multiple portfolio allocations and spending rates, we have found the following observations to be generally applicable:

- **Asset Allocation Strategy:** We believe that in most circumstances a fully diversified portfolio is preferable to a simple portfolio with fewer specified asset classes. The Sustainable Withdrawal Analysis typically includes portfolios with over 15 asset classes.
- **Risk Profile:** The long-term nature of institutional portfolios tends to favor a more aggressive approach. However, it is important to examine the range of likely outcomes and make sure your organization is able to reach an appropriate comfort level.
- **Payout Rate:** As is the case with risk profile, the appropriate payout level depends on your organization's current needs and how you choose to weigh long-term growth versus current payouts. We believe that a 4% or 5% payout policy is often most appropriate.
- **Payout Calculation Method:** For most organizations, we recommend the use of a rolling 20-quarter average payout. Compared to a 4-quarter rolling average, or even a 12-quarter rolling average, 20-quarter averages tend to smooth out payments, thereby enabling organizations to better meet their critical payout functions.

### Conclusion

There will no doubt be more financial crises in the future. The important thing is to have tools that your institution and financial advisors can utilize to help manage these crises effectively and in the best interest of your institution, its benefactors, and constituents.

We believe that our use of real-world data can offer institutions a robust tool that can help aid in relieving the emotional strain of investing through volatile markets by providing a rational basis for investment making decisions.

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