

A close-up photograph of a boat's rigging, showing a wooden pulley block, a metal shackle, and a rope. The background is a blurred view of a harbor with other boats.

The Risk Tolerance Paradox

...And What You Can Do About It

Overview

The risk tolerance level many investors expect to achieve over the long-term rarely equals the same tolerance investors actually experience over shorter periods. This paper provides a brief introduction to this paradox, explores the main reason we think it exists, and introduces a risk management strategy that seeks to solve the problem.

Ken Mungan, FSA, MAAA

Principal
Milliman Financial Risk Management LLC
ken.mungan@milliman.com

Matt Kaufman

Director
Milliman Financial Risk Management LLC
matt.kaufman@milliman.com

71 South Wacker Drive, 31st Floor
Chicago, IL 60606
+1 312 577 2868

As more “low volatility” and portfolio risk management strategies hit the marketplace, it will be imperative that advisors and investors explore each strategy to uncover how risk is actually being addressed. Identifying those techniques that address both diversifiable and systematic risk is likely to provide better overall results for investors.

Identifying Your True Risk Tolerance

In an attempt to simplify the complexities of managing portfolio risk, the discovery of an investor’s risk tolerance level has likely been a straightforward process. It may have begun with a series of questions about his/her time horizon, investment prowess, financial goals, and overall level of concern about the stock market; and it likely ended with a check mark placed in a box labeled “conservative,” “moderate,” or “aggressive,” branding the investor as such. Assets would have then been allocated among various asset classes that have collectively exhibited a historical level of risk (e.g., standard deviation, beta) that matched the investor’s predetermined profile.

There’s a Name for That

While the motive behind the risk profile check box is good—to assist investors in identifying a comfortable level of portfolio risk—the paradox many investors face is this: the risk tolerance level investors expect to achieve over the long-term rarely equals the risk level investors actually experience over the short-term. In other words, a conservative portfolio may act as such over the course of 20 or 30 years; however, during shorter time periods, that same conservative portfolio may exhibit volatility levels more in line with an aggressive (or more conservative) portfolio. This paradox is rooted in the statistical term “heteroscedasticity,” which simply means the level of volatility cannot be predicted over any period of time.

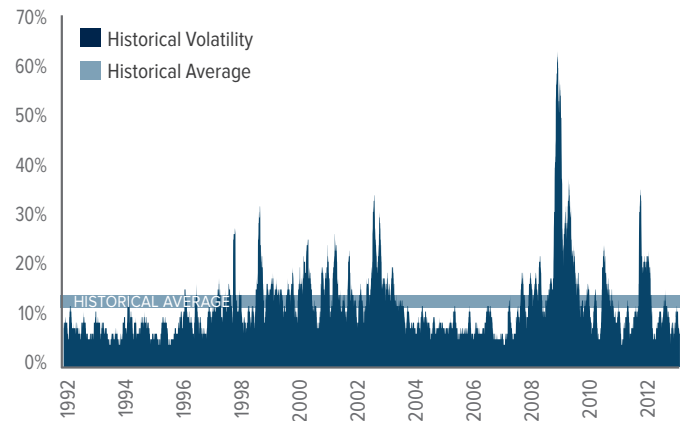
To illustrate this concept, let’s take a look at the portfolio of a typical moderate investor, consisting of 70% stocks (represented by the S&P 500 Index) and 30% bonds (represented by the Barclay’s U.S. Aggregate Bond Index). The average historical volatility of stocks is around 18%, and the average historical volatility of bonds is around 4%. Therefore, a moderate investor should expect to realize a volatility level of 13% over time.

During shorter periods, however, it is rare that a moderate investor actually experiences 13% volatility. In fact, from 1989 to 2012, on a 21-day basis, a typical moderate investor spent over 90% of his/her time at least one percent outside the historical average (more

than 14% or less than 12%). In other words, collectively, a typical moderate investor realized either too much or too little risk relative to his/her predetermined risk tolerance a total of 21 of the past 23 years (see chart below).

Historical Volatility of a 70/30 Allocation

1/89 - 12/12



Source: Milliman Financial Risk Management LLC, as of 1/1/00–12/31/12.

The performance data quoted represents hypothetical past performance, is for illustrative purposes and is not intended to represent any actual investments. Current performance may be lower or higher than the performance data quoted above. Investment return and principal value will fluctuate, so that shares, when redeemed, may be worth more or less than their original cost. Past performance is no guarantee of future results.

70/30 allocation is defined as a 70% and 30% allocation to the S&P 500 Index and Barclay’s U.S. Aggregate Bond Index, respectively. The S&P 500 Index is a commonly used benchmark comprised of all the stocks in the S&P 500 weighted by market value. The Barclay’s U.S. Aggregate Bond Index is a universally accepted benchmark for bond performance and is comprised of bonds with a maturity over one year. The index performance shown is for informational purposes only and is not reflective of any investment. It is not possible to invest directly in an index.

Two Types of Risk

The reason for this discrepancy lies in asset allocation’s ability to successfully manage portfolio risk.

There are multiple risks that can negatively affect portfolio value. When categorized, they generally fall into one of two buckets; 1) diversifiable risk, and 2) systematic risk.

Understanding this typecast is a cornerstone to truly reducing portfolio uncertainty.

Diversifiable Risk

Diversifiable risk is inherent within a specific company or industry. An employee strike at a coal mine, a detrimental headline, or an investment rating downgrade are a few examples of diversifiable risks. This type can generally be diversified away through appropriate asset allocation.

Systematic Risk

Systematic risk, on the other hand, is inherent to the entire market or market segment. Examples of systematic risk include global economic crisis, large interest rate movements, recessions, and wars, to name a few. Systematic risk events have a low probability of occurrence, but they can have a significant negative impact on portfolio value if they occur. This is because systematic risk events affect the whole “system.”

Systematic risk is considered to be un-diversifiable, and is responsible for some of the largest upswings in portfolio volatility on record (e.g., '73-'74, '00-'02, '08-'09). For example, during the recent financial crisis, nearly every major asset class declined in lockstep (save U.S. corporate bonds). Many people saw their retirement nest eggs lose significant value in a short period of time. This is simply because these types of risk events cannot be diversified away.

The realization of this has caused many investors and advisors to evaluate conventional wisdom, sparking a sea change in the way they manage portfolio risk and save for retirement.

Milliman Managed Risk Strategy™

We believe one way to address both diversifiable and systematic risk is through the combination of broad market access with a risk management overlay that is not dependent on the inter-connectedness of asset classes in down markets. The Milliman Managed Risk Strategy™ was designed to be the expression of this idea.

This hedging strategy is used in a variety of funds to help investors weather market turbulence. It is used as a strategy in mutual funds and target-date funds to seek to improve clients' likelihood of meeting retirement income goals. It is also used within variable annuities with guaranteed living benefit riders that are intended to give clients guaranteed lifetime income.

The goal of the Milliman Managed Risk Strategy™ is to stabilize the volatility of a fund around a target level, such as 10%, and to reduce the downside exposure of a fund during periods of significant and sustained market decline. The volatility management process is

designed to keep the risk level of a fund from increasing significantly during periods of market turbulence. An additional goal of the volatility management process is to earn additional returns based on the tendency of market volatility to decrease during extended periods of favorable market returns. In an attempt to reduce losses during periods of significant and sustained market decline, the Milliman Managed Risk Strategy™ uses a futures-based risk management process founded on strategies commonly used by major financial institutions. This strategy adjusts futures positions daily, subject to market-based thresholds, in an effort to preserve the capital of a fund on a rolling five-year basis. In a severely declining market, futures gains may be harvested and reinvested in growth assets in an effort to maximize long-term returns.

Exchange-traded futures contracts on major equity indices, U.S. Treasury bonds, and currencies are used to implement the Milliman Managed Risk Strategy™ within a fund. These instruments have been selected based on their high levels of liquidity and the security provided by major exchanges as the counterparty in a hedging transaction. Futures contracts are used only in an effort to reduce risk relative to a long-equity portfolio.

Conclusion

Historically, the common answer to overcoming portfolio volatility and large portfolio losses has been to, “Stay invested in the market; continue saving and investing in your portfolio across all market conditions; when the market goes down, ride out the storm—eventually growth will return and the damage to your portfolio will be repaired.”

We believe this maxim was completely accurate for individuals in their twenties and thirties. However, as millions of “accumulating” investors approach retirement, and become “decumulating” investors, this approach simply may not work. When an individual must use a portfolio to meet current income needs, it is not always possible to “ride out the storm.”

As the investment landscape increasingly focuses on risk management, it is imperative that financial advisors and their clients perform due diligence on each method. It is possible that risk management strategies that rely solely on asset allocation may still be exposed to periods of systematic risk, at which point asset allocation may be rendered ineffective.

We believe identifying those strategies that address both diversifiable and systematic risk is likely to provide better overall results for investors.

About Milliman Financial Risk Management LLC

Milliman Financial Risk Management LLC is a global leader in financial risk management to the retirement savings industry. Established in 1998, the practice includes over 100 professionals operating from three trading platforms around the world (Chicago, London, and Sydney), and advises over \$80 billion in assets (as of September 30, 2013).

for more information:

MILLIMAN.COM

+1 855 645 5462

Recipients must make their own independent decisions regarding any strategies or securities or financial instruments mentioned herein.

The products or services described or referenced herein may not be suitable or appropriate for the recipient. Many of the products and services described or referenced herein involve significant risks, and the recipient should not make any decision or enter into any transaction unless the recipient has fully understood all such risks and has independently determined that such decisions or transactions are appropriate for the recipient.

Any discussion of risks contained herein with respect to any product or service should not be considered to be a disclosure of all risks or a complete discussion of the risks involved.

The recipient should not construe any of the material contained herein as investment, hedging, trading, legal, regulatory, tax, accounting or other advice. The recipient should not act on any information in this document without consulting its investment, hedging, trading, legal, regulatory, tax, accounting and other advisors.

The materials in this document represent the opinion of the authors and are not representative of the views of Milliman, Inc. Milliman does not certify the information, nor does it guarantee the accuracy and completeness of such information. Use of such information is voluntary and should not be relied upon unless an independent review of its accuracy and completeness has been performed. Materials may not be reproduced without the express consent of Milliman.

Chicago

71 South Wacker Drive, 31st Floor
Chicago, IL 60606
+1 855 645 5462

London

11 Old Jewry, Third Floor
London
EC2R 8DU
UK
+ 44 0 20 7847 1557

Sydney

Level 5, 32 Walker Street
North Sydney, NSW 2060
Australia
+ 61 0 2 8090 9100