



Risk

Preparing Clients for an Uncertain Journey

If we think of expected return as the likeliest long-term “destination” of our investment portfolio, we can then think of risk as the uncertainty in the “journey” to that destination. Advisors serve their clients well by helping them understand the many paths that journey can take, and by establishing a plan of action (or inaction!) for when shortfalls inevitably occur.

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About the Series

This article is the second in an eight-part series navigating the investment landscape for the benefit of advisors and their clients.

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Key Points

1. The typical advisor-client relationship too often ends with a discussion of volatility in absolute returns. Extending the discussion to include a second form of investment risk, tracking error of relative returns, is critical to achieving the best client outcomes.
2. The journey to more compelling investment opportunities and to higher long-term returns is necessarily paved with higher volatility and higher tracking error. A client's thorough understanding of these bumps in the road will make for more successful advisor-client relationships.

Introduction

Understanding risk and having proper expectations around how it manifests in a securities portfolio is an essential part of making sound investment decisions. All too often, investors and their advisors allow their focus to tilt excessively toward the more positive and exciting side of the coin—forecasting expected returns—while giving short shrift to the more uncomfortable side—evaluating the potential risks. Particularly in today’s environment of quiet volatility,¹ investors may be tempted to ignore risk altogether. This is a mistake.

In the first article of our new series, John West and Amie Ko highlighted the pitfalls associated with using historical returns to set future long-term return expectations. In this second article of the series, we examine a concept joined at the hip with returns—that is, the risks investors face in the financial markets.

“Risk helps us understand the uncertainty in the ‘journey’ to our destination.”

Growing up in Alaska, I spent many summer evenings hiking the trails of Chugach State Park, a 500,000-acre sprawl of wilderness buttressing the city limits of Anchorage. A late summer trek up a nearby 5,000-foot peak would often reveal stunning vistas of the city and alpenglow settling on more-distant mountains.

I quickly became accustomed to the risks of hiking in the Alaskan wilds: sunny skies at the trailhead didn’t rule out mid-August snow flurries blowing in at higher elevations, exploring off-trail (a brazen habit I have yet to be cured of) resulted in several sketchy scrambles down sheer cliffs, and more than one bear and I met face to face. I found that these risks were largely unavoidable, but embarking from the trailhead with full knowledge of what dangers lurked in the wilderness, and traveling well prepared to meet them, allowed me to respond effectively when they inevitably arose, rather than react in a panicked frenzy.

The same attitude has served me well in navigating the risks that are present in the financial markets. My guideposts are to enter an investment opportunity with a full assessment of the potential risks involved and their outcomes, and have a prepared response for when those bad outcomes inevitably occur. In this article, we focus on two types of investment risk that lie at the center of a critical advisor–client discussion: 1) volatility of *absolute* returns and 2) tracking error of *relative* returns, which is a variety of maverick risk, so-named because it reflects the discomfort of receiving outcomes different from one’s benchmark or peers.

Both of these risks measure variability around expected returns, so it's best to think about [expected returns](#) and risk as two sides of the same coin. An expected return is simply the mid-point for a range of outcomes. In this manner, we can think of the expected return as our likeliest long-term “destination.” Risk, by contrast, helps us understand the uncertainty in the “journey” to the destination. An advisor whose focus is on better investor outcomes ensures clients have a full appreciation of the many paths that journey can take, and like my early days in the Chugach, have a plan of action (or inaction!) for when shortfalls occur.

Tempting as it is to try to quantify the risks that investors face, we cannot escape the fact that the future is, by definition, uncertain. Regardless of how finely we sharpen our risk measurement tools, so-called black swan events can wreak havoc with even the best-laid investment plans.

In Against the Gods: The Remarkable

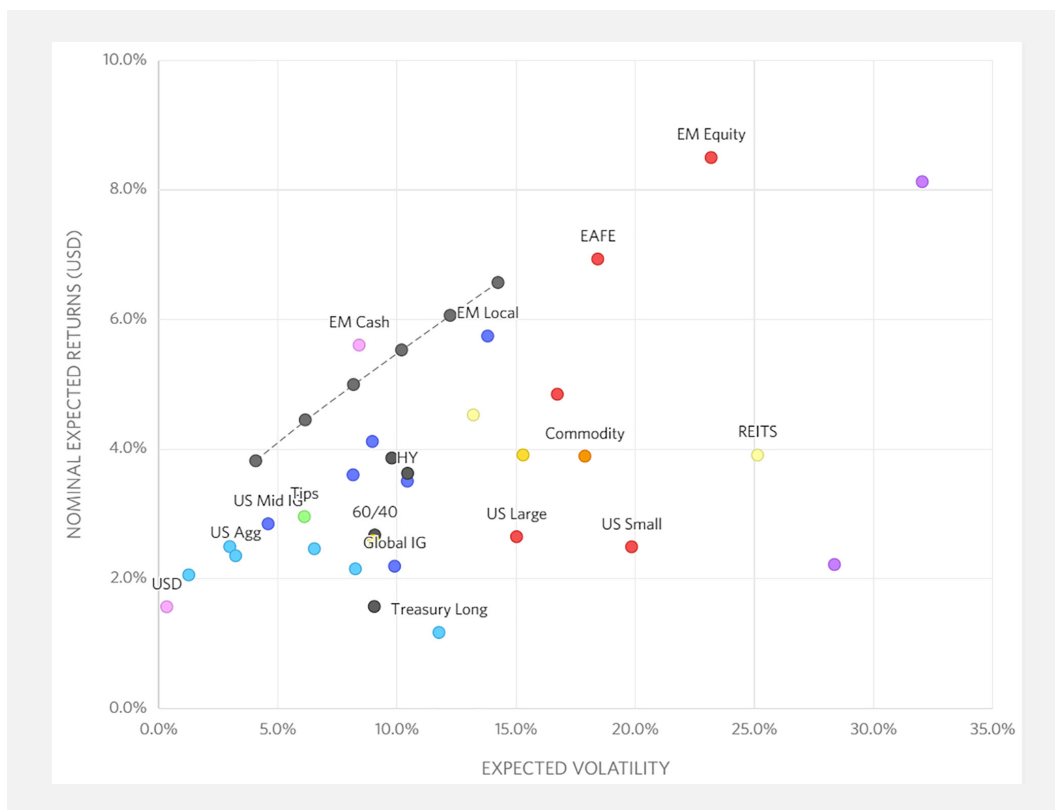
Story of Risk, Peter Bernstein explains the difference between risk and uncertainty. Uncertainty describes how our practice of quantifying risk inevitably misses the mark at times, leading to truly unexpected and often material consequences. Although we focus here on two common definitions of risk, many other variants warrant consideration in an extended conversation around risk, especially those types that cannot be easily measured.

“We see ‘shock’ at outcomes well within the expected bounds of tracking error.”

Volatility: Translating Standard Deviation

The statistical practice of measuring risk as volatility sits at the core of every investments class and the curriculums of our industry’s well-respected investment credentialing programs. While an imperfect conceptualization, volatility nevertheless presents a tractable, measurable summary of the distribution of possible outcomes available in the markets, and lends itself well to quantitative modeling. Volatility also gives us a very sensible counterpoint to expected return: for a given level of return, investors should logically prefer a less-volatile asset, and at a given level of volatility, investors should seek out the highest-returning strategies.² This simple precept underlays grand financial paradigms such as modern portfolio theory (Markowitz, 1952) and the capital asset pricing model (Sharpe, 1964; Lintner, 1965).

The [Asset Allocation Interactive](#) tool on the Research Affiliates website visually displays this spectrum of risk and return for a wide variety of asset classes.



Expected return is shown on the vertical axis, and expected volatility (standard deviation of returns) is displayed on the horizontal axis. Assets lying to the left and higher on the graph offer a superior tradeoff between expected return and expected volatility. The efficient portfolios (those combinations of assets that provide the highest return for exposure to a given level of risk) are shown as grey dots, with the dashed line sketching out the efficient frontier, illustrating the typical return premium; that is, buying portfolios with higher volatility provides higher expected returns. Clicking on the portfolios on the efficient frontier brings up a summary card with the portfolio’s return and risk characteristics. For example, based on data as of August 31, 2017,³ the 10.0% volatility portfolio shows a 5.5% expected return with a 10.2% standard deviation.⁴

Of course, very few clients understand the concept of standard deviation, so it’s useful to transform volatility, or standard deviation of returns, into a discussion tool to convey how widely shorter-term returns can vary around long-term expectations. Under normal distributions, investors can expect to receive a return within one standard deviation of the mean approximately 2 years out of 3, and to receive a return more than two standard deviations beyond the mean about once every 20 years.⁵ Because market returns have

“fat tails,” crashes occur more frequently than expected and in more dramatic fashion than would be predicted by a normal distribution.⁶

For a portfolio with a 5% expected return and 10% volatility, we should explain to our client that they will likely receive a return worse than -5% every 6 years or so, and at some point during their investing lifespan, an annual return worse than -15%—and even potentially *much worse!* Suppose your 35-year-old client Nancy has \$100,000 to invest. Although she believes she has a high risk tolerance, she draws the line at losing more than \$10,000 in any given year. Should Nancy invest in the 10% volatility portfolio? This would not be a good idea because at some point over the next 40 years (a realistic life span for her), Nancy should expect to lose more than that amount in a single year.

Clients should not just be comfortable with the possibility—*but should expect*—that losses of this magnitude will occur, and should be (pleasantly) surprised if they do not. We are continuously amazed at how frequently investors are “shocked” by negative returns that fall well within the normal distribution of outcomes.

Tracking Error: Being Wrong and Alone

Most risk discussions between financial advisors and their clients stop after the analysis of volatility. But this misses a crucial element in how human beings think about risk. Much of our happiness is centered not on absolute success, but rather our position relative to our neighbor’s success.⁷ The risk of being wrong, and alone, can be quantified by tracking error, which is a benchmark-sensitive measure of risk: How widely does a portfolio’s return vary around the return of its specified benchmark? A portfolio that consistently delivers a return close to its benchmark’s return generates low tracking error, and a portfolio producing outcomes falling far from those of the benchmark have high tracking error.

This concept, a form of maverick risk, is driven by the psychological tendency toward “herd behavior.” Humans have an atavistic tendency to stick with their herd, seeking safety in numbers. Early humans who became separated from their tribes, or animals separated from their pack, often met with early death. In today’s world, this evolutionary tendency manifests as a natural discomfort when we receive different outcomes from our peers, which modern society has described through the recently coined term “Fear of Missing Out” (FOMO).

This fear can be particularly powerful in the financial markets. Just ask anyone who has hesitantly watched as their friends and neighbors got rich investing in Chinese internet stocks, or crypto-currencies, or flipping real estate in 2007, or

riding the dot-com bubble in 1999. We can also look to no less a luminary than Sir Isaac Newton, who fell prey to FOMO long before it earned that acronym. The South Sea Company garnered a monopoly from the English government on trading with the emerging markets of the day in the South Seas. In early 1720, a bubble began to inflate in the company's stock. Sir Isaac, an early investor, quickly doubled his initial investment over the course of several months, and exited happily. His resounding success quickly turned dark, however, as he watched the stock price of the South Sea Company double and triple from his exit point. His friends who remained invested reaped even greater rewards, no doubt regaling their good fortune to the crowded cocktail parties of the day. What had been a great success for Sir Isaac turned into a painful failure. Sir Isaac, unable to bear the psychological damage inflicted by his friends' good

“With risk comes opportunity and the potential for better investment outcomes.”

fortune, bought back into the South Sea Company near the height of the market and subsequently lost nearly his entire life savings. This brought him to utter the alleged lament, “I can calculate the movement of heavenly bodies, but not the madness of men.”

Maverick risk, then, presents opportunities to investors who are willing to bear the discomfort of acting differently from their peers. This can take the form of shunning popular, but expensive, investments as Sir Isaac tried, but failed, to do, or by investing in unloved, discounted assets that may be unpopular, but often *because of that unpopularity* are priced to deliver attractive expected returns.

Take the example of Warren Buffett. In addition to having a keen sense for determining the fair value of corporate and financial assets, Buffett also benefits from a willingness to take maverick risk, along with secure control of capital. His track record as an investor is very well known; the return on Berkshire Hathaway Class A shares since 1980 has been an annualized 20.4%, far in excess of the S&P 500 Index return of 8.8% for the same period. This return has, however, been generated with a tremendous tracking error of 22%, meaning that roughly one-third of the time Buffett's returns have differed from the S&P 500 by more than 22%! Clearly, many of these instances have been on the upside, but Buffett has also held on steadfastly through many down periods.

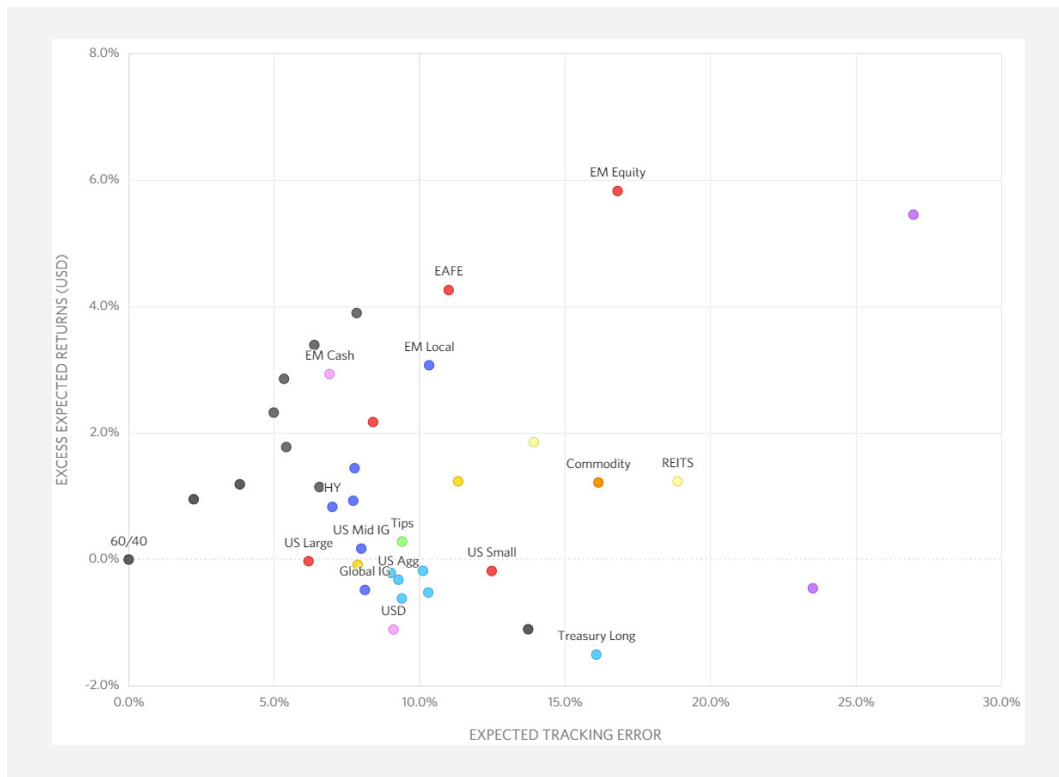
From mid-1998 until March 2000, Berkshire Hathaway underperformed the market by 54% (close to three standard deviations). How many clients would be able to stomach those extended losses without throwing in the towel? *Barron's* questioned “What's Wrong, Warren?” and warned “Warren Buffet

may be losing his magic touch” (Bary, 1999). But Buffett has never been one to let short-term market movements change his convictions, proclaiming that “If you aren’t willing to own a stock for 10 years, don’t even think about owning it for 10 minutes.” Buffett stuck to his maverick philosophy of investing, and by July 2002 had recovered all the shortfall and more.

Commensurate with Buffett’s willingness to be different is the security of his capital, based on collected insurance premiums that must remain invested. Advisors who recommend portfolios and asset allocations with higher levels of tracking error must ensure that their clients fully understand the nature and extent of this risk and not fall prey to the temptation to pull out of their investments during the inevitable drawdowns when compared to the “herd portfolio.” As Arnott (2003) notes:

No decisions are infallible. Decisions that leave an investor alone carry the inherent risk of being both wrong and alone. If an investor is wrong and alone, a strong likelihood is that the assets’ owner will not have the patience to see the investment decision through. The decision, even if correct in the long run, will be reversed before it can succeed.

A quick look at the [Asset Allocation Interactive](#) tool helps frame the decisions an investor needs to make.



The Asset Allocation Interactive tool allows investors to select a benchmark: the standard 60/40 allocation, a global market-cap-weighted portfolio, or a portfolio of long-term liabilities. Selecting one of these transforms the y-axis to expected excess returns (over the selected benchmark) and the x-axis to expected tracking error against that benchmark. The view here, using the 60/40 benchmark, shows the return potential for taking tracking error risk. Note that the first grey dot to the right of the 60/40 grey dot, located on the y-axis, represents the “Advisor Average” portfolio, which is priced to deliver a 1.0% expected excess return with a modest 2.2% expected tracking error. This portfolio is primarily composed of US stocks and bonds, with a smattering of alternative assets.

Several dots further to the right lies the 10%-volatility efficient portfolio. We expect this portfolio (as of August 31, 2017) to return 2.9% more than the 60/40 benchmark, with 5.3% tracking error. Taking on this risk creates the potential for significantly higher and more efficient returns, but only if the client can live through the discomfort of holding the portfolio over the long run. The 5.3% tracking error means that clients should expect this portfolio to underperform their 60/40 peers by more than 5.3% roughly once every 6 years, and by more than 10.6% once every 44 years or so.

Many have been stung by the “cost” of diversification in recent years. In 2015, a 60/40 portfolio returned 1.3% while a diversifying basket of 10 equally weighted alternative assets⁸ returned -5.3%. In 2013, the 60/40 benchmark delivered 17.6% while the alternative asset basket returned 1.1%. These shortfalls are undoubtedly painful and test conviction. But should they have been a tremendous surprise? Again, we see “shock” at outcomes well within the expected bounds of tracking error. Precisely this emotional pain, and the required resilience to hold onto the investment strategy producing such pain, is what gives rise to the opportunity. In *The General Theory of Employment, Theory, and Money* published in 1935, John Maynard Keynes summed up this dilemma well when referring to the long-term focused maverick investor:

If he is successful, that will only confirm the general belief in his rashness; and if in the short run he is unsuccessful, which is very likely, he will not receive much mercy. Worldly wisdom teaches that it is better for reputation to fail conventionally than to succeed unconventionally.

Conclusion

With risk comes opportunity and the potential for better investment outcomes. Today’s environment of low expected returns has driven many investors to

seek higher and different sorts of risk in order to meet their return objectives. Compelling opportunities exist with a plethora of global assets priced to deliver returns above the anemic 2.7% long-term return we at Research Affiliates are expecting from the US 60/40 portfolio. But achieving this higher return requires exposure to higher volatility and significant tracking error risk. Investors who want to follow this path and the advisors who seek to map the path for them should have a full understanding of these risks and a plan in place for traversing the likely bumpy terrain ahead.

Exploring off the beaten path led me to my most memorable hiking experiences in the Chugach. I knew that popular trails nearest to town would deliver predictable experiences, and a steady stream of fellow hikers would help mitigate any risks. As I ventured farther back in the Chugach wilds, the mountains grew taller, fellow travelers fewer, and the risks greater. Sometimes these adventures resulted in a miserable slog along a moose trail through an alder-choked valley, or a fruitless scramble along a sheer mountain ridge, only to get turned back well short of the summit. These risks were known, and acceptable. Persevering through them led me to my best memories: finding a new route to the highest point of a seldom-explored peak, both exultant in the victory and humbled by the grandeur of wilderness from all sides, while soaking up the light of the midnight sun in a place few of my peers would ever reach.

FURTHER READING



September 2017

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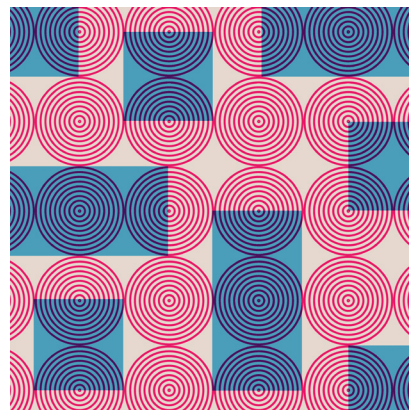
by John West, CFA,
and Amie Ko, CFA



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June 2017

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by Jim Masturzo, CFA

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Endnotes

1. The VIX, a measure of forward-looking volatility in the equity markets, sits below 10.0% as of this writing in early October 2017.
2. As stated earlier, a related concept to volatility is uncertainty. While volatility represents the risk characteristics of a known distribution, uncertainty recognizes that any estimates will differ from the unknowable parameters of the true underlying distribution. We encourage readers to keep in mind—as we do—that our models, like all models, are bound to be wrong and serve only as useful approximations of the true investing landscape.
3. The [Asset Allocation Interactive](#) website is updated quarterly with the most recent expected returns data.
4. This portfolio is optimized to deliver the maximum nominal return for a 10.0% volatility. Please note that the default on the [Asset Allocation Interactive](#) website displays real returns.
5. In a normal distribution, there is a 95.5% probability of the distribution falling within two standard deviations of the mean. Therefore, about 2.25% of the distribution will be more than two standard deviations above the mean, and 2.25% will be more than two standard deviations below the mean. So over 100 years, we would expect an observation of more than two standard deviations below the mean 2.25 times, so $100 \text{ years} / 2.25 = \text{once every } 44 \text{ years}$.
6. A large body of literature beginning with Mandelbrot (1963) shows that financial markets do not generally follow a normal distribution. They tend to be lopsided toward more frequent, but smaller, positive outcomes, and the downside outcomes that do occur are larger (negatively skewed); and the frequency of tail events (observations far away from the mean) are higher than predicted by a normal distribution. For example, the standard deviation of monthly returns for the S&P 500 since 1950 has been 4.1% with a mean return of 0.7%. This means that normally distributed outcomes should produce a return lower than –7.5% (two standard deviations below the mean) in 2.25% of the months, or about 18 times. Yet we have seen 27 such months in the data. Similarly, we would expect to see 18 monthly returns more than two standard deviations above the mean, but history has treated us to only 14 such observations. The history of financial markets has shown that large downside events are more common, and large upside events less common, than implied by a simple analysis of standard deviation.
7. Solnicka and Hemenway (1998) conducted a survey of students, staff, and faculty at the Harvard School of Public Health on their attitudes about absolute and relative position within society. They found that half of the respondents would be willing to receive half as much real income as long as they were making twice as much as their peers.
8. The equally weighted basket of alternative assets includes the following 10 representative asset classes: US core bonds, foreign bonds, EM currencies, high yield, bank loans, US TIPS, REITs, commodities, world equities, and EM equities. It is not equivalent to the 10.0% volatility portfolio, but is presented here as a proxy. The efficient portfolio's composition will change over time depending on market conditions and expected returns.

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