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# Strategic Asset Allocation and Opportunistic Rebalancing

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## Introduction: Risk and Return

A goal of community foundations in general is to achieve a level of return that is adequate to further their missions at an acceptable risk level or, in other words, they do not wish to take on more risk than is necessary to accomplish the goal. During the most recent bear market, community foundations were very concerned about a rapid and severe drop in asset values. At this point in time, however, it is important to have a disciplined long term strategy and not overreact to short term trends.

Investors often focus too much on either risk or return, depending upon the current climate. Calendar year 2008 was a good example of a tendency for investors to over-focus on risk. Since risk and return tend to be related, investors must consider both at the same time. The constant challenge is how to achieve returns that are adequate for foundations to meet their ongoing grant making obligations while controlling their exposure to undo risk at the same time.

This article explores three concepts to help you more effectively manage risk and return:

- 1) Achieving effective diversification by developing a detailed asset allocation strategy
- 2) Understanding the role of Modern Portfolio Theory (MPT), and
- 3) The benefits of a formal rebalancing policy.

## From UMIFA to UPMIFA

When you are responsible for other people's money, you are a fiduciary.

The Uniform Management of Institutional Funds Act (UMIFA) did not have clear guidelines for the "prudent investor". However, the successor to UMIFA, the Uniform Prudent Management of Institutional Funds Act (UPMIFA), has additional guidance in this area and most states have now adopted UPMIFA as the new fiduciary standard.

As we think about asset allocation policy, there are three very important concepts that are now more fully recognized by UPMIFA:

**First:** The express duty to diversify. We will explore some ideas on how to build an effective asset allocation strategy to accomplish diversification.

**Second:** The recognition of Modern Portfolio Theory (MPT). A principal theory of MPT is that combinations of assets together act much better than each asset on its own. Interpretations of UMIFA's concept of prudent investing meant that each investment in the portfolio was judged on its own to be prudent or not. UPMIFA recognizes

that each new investment should be evaluated based on its contribution to the portfolio (how it correlates to other assets in the portfolio), not just its standalone characteristics.

**Third:** UPMIFA specifically includes considerations about rebalancing. This is a powerful concept that helps us use the volatility of each asset class as a constructive tool rather than a problem to be avoided.

## Importance of Asset Allocation Policy

While most professional investment advisors agree that asset allocation policy is the primary determinant of portfolio return, the implementation of this concept varies widely in practice. Asset allocation policy requires an investor to answer a few key questions, such as the following:

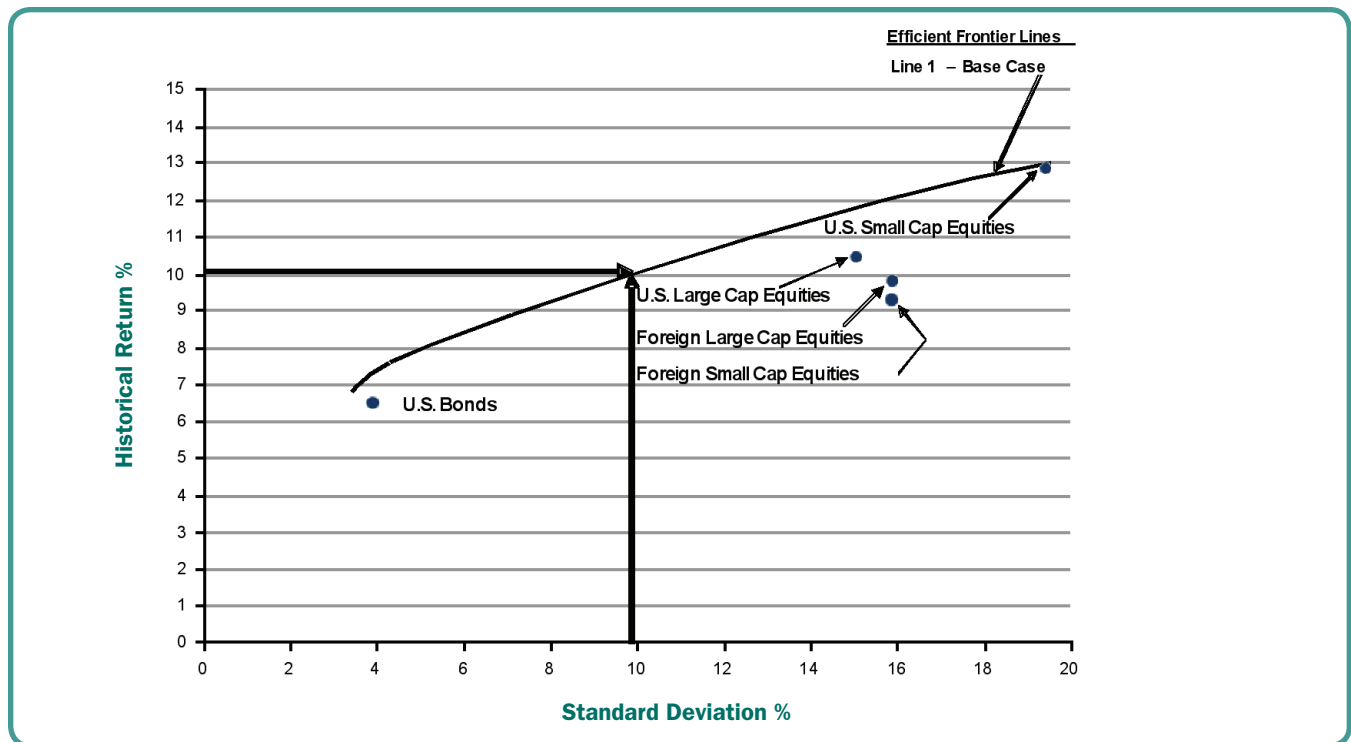
- 1) How many asset classes should be included in the portfolio?
- 2) Which asset classes should be included?
- 3) What percentage of the portfolio should be allocated to each asset class?

To begin to answer these questions, investors must clearly define their investment objective. For a community foundation, the objective should be articulated in the investment policy statement (IPS). Once the investor has chosen the specific type and number of asset classes, a more complex issue arises. What percentage of the portfolio should be allocated to each class? Also, once asset class targets are set, there are differences of opinion on whether or not there should be some tactical overlay. An investor who applies a tactical overlay adjusts targets periodically to reflect short or intermediate term projections of economic activity or market behavior. An investor who follows what we will call a “strategic approach”, sets policy targets and does not adjust them for short or intermediate term market considerations. In order to effectively illustrate the principles of asset allocation and rebalancing, we will discuss the application of the strategic approach.

How can we apply the concept of asset allocation to the question of balancing risk and return? Do risk and return really move in lockstep, or are there ways we can achieve higher levels of return without taking on more risk? For our purposes here, risk is defined as standard deviation. Standard deviation is the amount of volatility experienced above or below an average return over a given time period.

Graph 1 illustrates a basket of five asset classes which some would consider a well- diversified portfolio. The illustration uses historical data from June 1992 through June 2008 (16 years). Our task is to determine what percentages to use for each of these asset classes.

Before we begin we need to insert an important word of caution. We are using historical data. History helps us to better understand tendencies of various asset classes and enhance our perspective but does not allow us to predict the future. History gives us some useful indications of how asset classes correlate to each other, which is very helpful in designing an asset allocation strategy. The essence of asset allocation is to use a basket of asset classes that are not highly correlated, meaning they do not move at the same rates at the same times. Some assets move in opposite directions. This is referred to as inverse correlation. However, assets have a tendency to move in surprising ways during certain cycles. A recent example is 2008, when almost all equity classes moved in the same direction. This is not the first time this has happened and it probably will not be the last. Furthermore, if you only use historical data in your decision making, you may get portfolio combinations that will not make sense going forward. Other tools must be applied and informed judgments must be made.

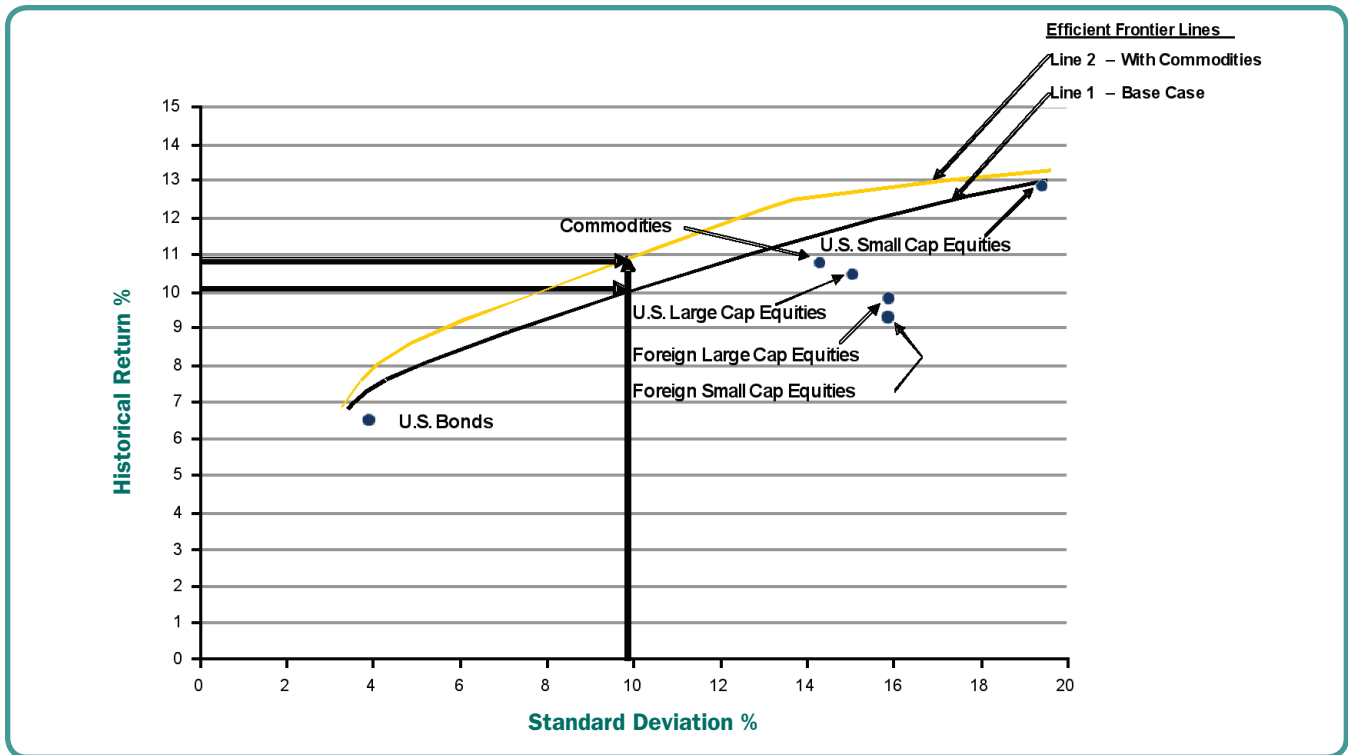


**Graph 1: Asset Allocation—Base Case**

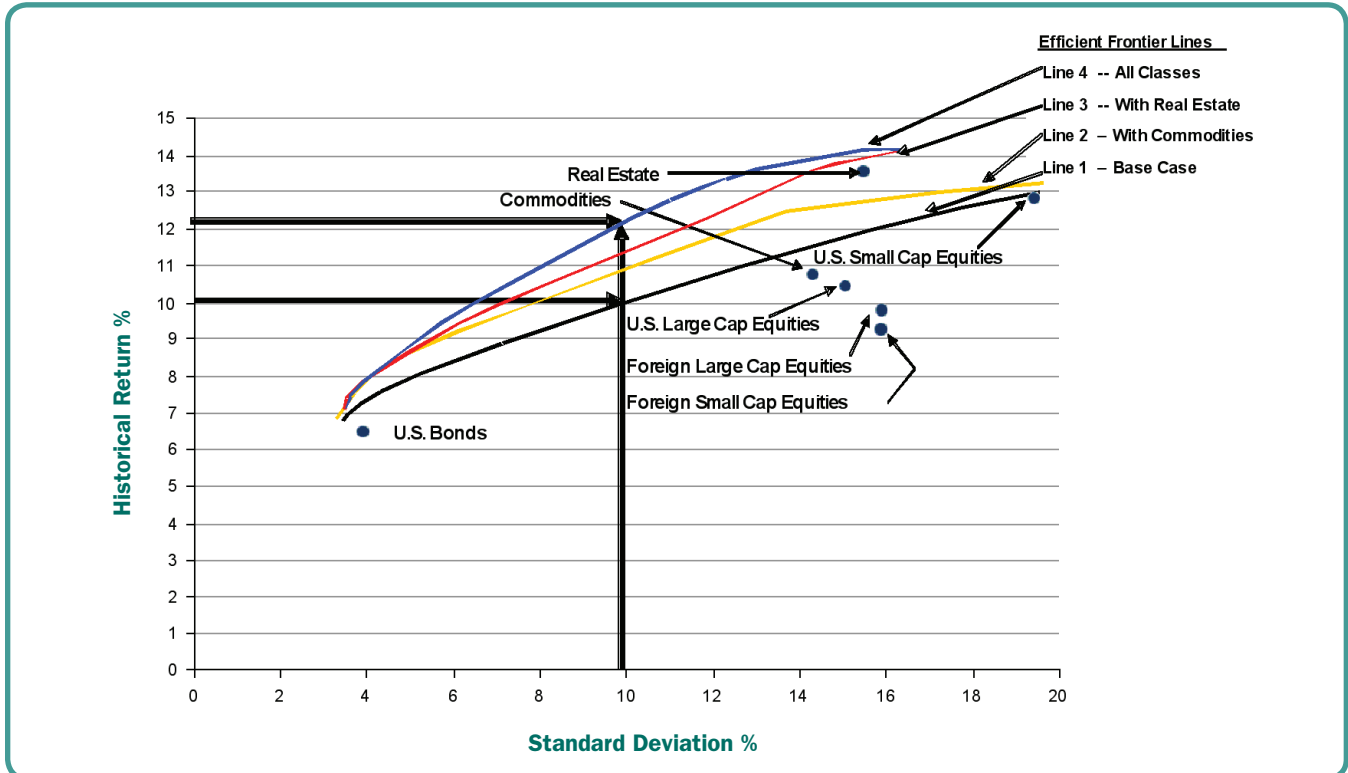
Line 1 in graph 1 is known as the efficient frontier. It represents a series of efficient portfolio combinations of our five, base case, asset classes including U.S. Bonds, U.S. Large Cap Equities, U.S. Small Cap Equities, Foreign Large Cap Equities and Foreign Small Cap Equities. Simply, the efficient frontier represents the most efficient combinations of these asset classes so that you would not be able to find a mix with more return with the same amount of risk or less risk with the same amount of return. An investor should choose a portfolio combination that meets their investment objective within acceptable risk constraints. Our example portfolio, represented where the two arrows meet, gives us, historically, an approximate 10% standard deviation (risk) with an approximate 10% return. There is no combination of these five asset classes that will give us more return at the same level of risk.

Is there any way to potentially add return without adding to risk? What happens if we add an asset class to our base case portfolio? Remember the discussion about UPMIFA's recognition of Modern Portfolio Theory (MPT)? Graph 2 illustrates a great example of this by adding commodities to our hypothetical portfolio. In the old "prudent investor" concept, a commodities asset class may not have been qualified as a prudent investment because it has very high volatility on its own, just as small cap equities have high volatility as a standalone investment. But what happens if we add it to our existing basket of asset classes? It moves our efficient frontier up as displayed by line 2 in graph 2. You may move the efficient frontier by adding new asset classes. It is not a wall. This allows us the potential for higher returns at the same risk level. Again, with MPT, you would judge the addition of a very volatile asset class as a prudent move because of its contribution to the overall portfolio.

What really gets interesting is if you add both commodities and real estate to the portfolio (see graph 3). When introducing MPT we talked about how combinations of assets act much differently when combined than they do on their own. By adding two asset classes at once, we move the efficient frontier even higher (line 4, graph 3) than when we just added one or the other.



**Graph 2: Adding an Additional Asset Class—Commodities**



**Graph 3: Combining Additional Asset Classes—Commodities and Real Estate**

In fact, historically, you would have received approximately two percentage points more in return at approximately the same level of risk. This is the essence of what asset allocation strategies are designed to achieve. What does that mean to you? Two additional percentage points of return, on average, over the 16 year period we researched could have a very positive effect on grant making over time.

## Opportunistic Rebalancing

Is there anything else we can do to generate more return without increasing risk? How about rebalancing policy?

Simply put, rebalancing is buying or selling asset classes that fall below or rise above their long term strategic targets. Rebalancing fosters the discipline of “buy low and sell high”. In theory, buying low and selling high seems simple, but in practice emotions tend to dictate an investor’s actions. Opportunities to buy (when an asset class falls below its target) are often created when bad news or negative market predictions depress prices. Conversely, opportunities to sell (when an asset class rises above its target) may be created by good news and positive predictions of the future for that asset class.

Rebalancing policy has been the subject of debate for quite some time. There have been numerous articles written about how and when to rebalance, and whether or not rebalancing is beneficial. An inherent risk with an investment policy statement that lacks a rebalancing strategy is that the portfolio’s risk characteristics could change dramatically over time. During a strong bull market for equities, a portfolio’s effective percentage allocation to equities will increase if the portfolio is not rebalanced. This lack of rebalancing may cause the portfolio to become more aggressively postured than was originally intended. For example, a portfolio with intended targets of 60% in equities and 40% in fixed income may drift to a mix of 70/30 or even 80/20 depending upon the strength of the upswing in equity prices. The result of not rebalancing is that there may be more downside risk for the overall portfolio when equities correct. During a precipitous bear market (sound familiar?) the percentage allocations to asset classes such as bonds (particularly government issues) and cash will increase, causing the portfolio to become much more conservatively postured than its original intent. This may result in less upside for the overall portfolio when equity markets recover.

If we believe that some type of rebalancing is essential to the maintenance of our strategic asset allocation and assumed risk posture, how and when should we rebalance? Should we rebalance when a specific time period has passed? Should we wait until the portfolio is close to the minimum or maximum limits our investment committee set? Should we rebalance whenever an asset class target is violated, even if only by a small amount? Should we wait until the market “settles down” and then rebalance?

This process can be further slowed if a committee needs to approve each rebalancing event rather than establishing policies up front to determine what triggers a rebalancing event. A drawback of using a time cycle is that the end of the cycle may miss the optimal opportunity to rebalance. In other words, equities may have a dramatic one day recovery in the middle of a cycle and the chance to buy more toward the bottom may be lost. What if we were able to rebalance based on market moves and not simply the passage of time? Would that allow us to capture better buying and selling opportunities?

## Rebalancing Study

A study by Gobind Daryanani uncovers some very interesting ideas about rebalancing (see *Opportunistic Rebalancing: A new Paradigm for Wealth Managers, Journal of Financial Planning*, January 2008). The study required daily data on prices of asset classes, which he was able find for five classes- U.S. Large Cap Stocks, U.S. Small Cap Stocks, Real Estate, Commodities, and Bonds. The daily data was important because the hypothesis was based on capturing market moves at the most opportune time. This idea requires that you look (review the portfolio) for opportunities to rebalance often enough to capture those most opportune moves. Results for Mr. Daryanani's baseline case are shown in table 1.

The study tested looking once per year (every 250 trading days) on up to looking every day. The conclusion was that looking every 10 trading days was often enough to capture the most value (see graph 4). Remember, you are not rebalancing (buying or selling) every 10 trading days, but rather you are looking for opportunities to rebalance. At the time of this study, and before the market turmoil of 2008 and 2009, the actual trigger to rebalance happened only two or three times per year on average. During 2008 and early 2009, rebalancing was triggered more often, which you would expect during volatile times.

A second important test was how wide the variances above or below targets should be. The test concludes that triggering a rebalance once an asset class varies by 20% (20% Band line in graph 4) above or below the targets delivered the best results.

Note, this 20% is a percent of target, not 20 percentage points (see graph 4). Why is this so? It turns out that momentum is very important. He discovered this by shuffling (see table 2) the data (sometimes called bootstrap-ping). He took those daily returns and shuffled them so they were no longer in order. The returns and standard deviations remained the same, but the advantage of how often you look for rebalancing opportunities was eliminated. It did not matter if you looked every day or once per year. Mr. Daryanani has more specific language to describe this, but it turns out that often what goes up, continues to go up for a time, and the pattern is the same for declines.

Panel A: 12 Month Averaged Geometric Returns							
Look Interval in Market Days							
Rebalance Bands	250	125	60	20	10	5	1
0%	9.449%	9.381%	9.362%	9.260%	9.137%	8.895%	6.868%
5%	9.453%	9.410%	9.380%	9.385%	9.399%	9.383%	9.377%
10%	9.484%	9.439%	9.452%	9.428%	9.460%	9.450%	9.427%
15%	9.473%	9.521%	9.519%	9.533%	9.534%	9.511%	9.498%
20%	9.497%	9.547%	9.566%	9.584%	9.632%	9.620%	9.684%
25%	9.359%	9.490%	9.459%	9.504%	9.556%	9.622%	9.613%
100%	9.186%	9.186%	9.186%	9.186%	9.186%	9.186%	9.186%

Panel B: Rebalance Return Benefit Relative to No Rebalancing							
Look Interval in Market Days							
Rebalance Bands	250	125	60	20	10	5	1
0%	0.26%	0.19%	0.18%	0.07%	-0.05%	-0.29%	-2.32%
5%	0.27%	0.22%	0.19%	0.20%	0.21%	0.20%	0.19%
10%	0.30%	0.25%	0.27%	0.24%	0.27%	0.26%	0.24%
15%	0.29%	0.33%	0.33%	0.35%	0.35%	0.32%	0.31%
20%	0.31%	0.36%	0.38%	0.40%	0.45%	0.43%	0.50%
25%	0.17%	0.30%	0.27%	0.32%	0.37%	0.44%	0.43%
100%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

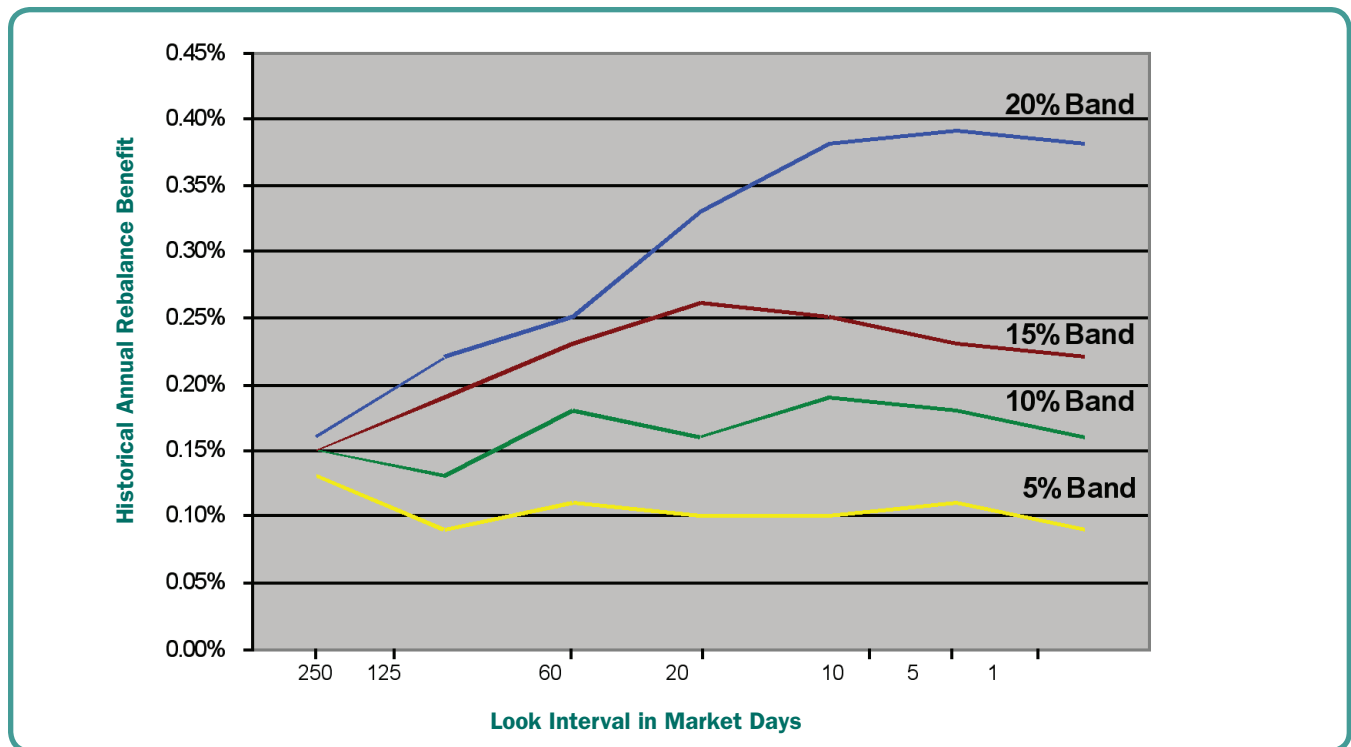
The best three algorithms are shown in grey. The bottom row is the no-rebalance case. The 25 percent band has more than 5% equity exposure drift.

**Table 1: Rebalanced Returns and Benefits for 1992-2004**

Look Interval in Market Days							
Rebalance Bands	250	125	60	20	10	5	1
0%	0.15%	0.10%	0.06%	-0.01%	-0.12%	-0.37%	-2.39%
5%	0.16%	0.11%	0.09%	0.08%	0.09%	0.08%	0.06%
10%	0.17%	0.13%	0.12%	0.11%	0.11%	0.12%	0.11%
15%	0.17%	0.16%	0.15%	0.16%	0.14%	0.16%	0.15%
20%	0.17%	0.20%	0.17%	0.18%	0.18%	0.18%	0.16%
25%	0.19%	0.17%	0.18%	0.19%	0.20%	0.20%	0.19%
100%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

The best algorithms are shown in grey.

**Table 2: Rebalanced Returns and Benefits for Shuffle Experiment**



**Graph 4: Return Rebalance Benefit vs. Look-Frequency and Bands**

Technology has played a revolutionary role in most businesses. This includes investment management. Following his study, Mr. Daryanani developed an automated system to track and assist in applying this new rebalancing methodology.

It is particularly important to remember that historical patterns may again be repeated in the future including strong bear markets and panics *as well as* strong bull markets and euphoria. As this article is written we have experienced an historic decline in equities only exceeded during the Great Depression. A formal rebalancing policy, clearly described in your investment policy statement, can be a big help. A proper policy will guide you to make adjustments as asset classes shift. During 2008, energy and commodities increased dramatically through the middle of the year. By the beginning of summer the prognosticators were calling for oil to go to \$200 per barrel. As we all know now, oil actually crashed. A rebalancing policy, properly applied, would most likely have called for selling oil during its run up, taking advantage of what in hindsight were unrealistically high prices. During the crash in equity asset classes, bonds on a relative basis held their values, allowing a source to cash in and buy equities as they severely declined in value. This does not mean you sell at the top and buy at the bottom. It means that, on average, you buy and sell at better prices than you otherwise would. Do not be deterred by the fact that you can not get the timing exactly correct. Follow your plan.

## Conclusion

It is important to remember that most investment theories are developed based on history and historical relationships. If you expect history to predict the future, particularly in the short term (three years or less), you are going to be disappointed and may fail to stick with your long term plan. However, a historical perspective is a very important tool. Those perspectives, properly studied, will very often uncover cyclical relationships that recur, on average, over time. This means not every time, but more often than not.

Investors who have a detailed asset allocation strategy combined with a disciplined rebalancing plan know exactly what they should do in times of panic and euphoria. This is especially helpful when emotions run high, possibly influencing them to do the opposite of what they should. As we all saw in 2008 and into 2009, it was very difficult to maintain discipline in a time of global market meltdown. This paper was designed to provide committees and foundation executives with some basis for the next event that tests their mettle. For investors with a long term time horizon, a plan, well executed can help to manage the uncertainty.

For more information on Mason's rebalancing strategies including a new rebalancing study, please see: <http://www.masoncompanies.com/research.asp>

For more information on Gobind Daryanai's research paper, please see: [http://www.irebal.com/docs/Opportunistic\\_Rebalancing.pdf](http://www.irebal.com/docs/Opportunistic_Rebalancing.pdf)

### Biography: Scott George

Mr. George joined Mason in 1988 and is Chief Investment Officer as well as Chairman of the Mason Investment Committee. Mr. George works with many nonprofit organizations including Community Foundations as well as for profit entities and high net worth individuals. In his role as Chairman of the Mason Investment Committee, Mr. George leads the firm's research in asset allocation, manager selection and overall investment policy. He received his Bachelor of Business Administration degree with a concentration in accounting in 1980 and his MBA, with a concentration in finance and investments in 1985, both from George Washington University. Mr. George lives with his wife in McLean, VA and has three children.

### Mason Investment Advisory Services

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