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## Beyond Markowitz – RiverFront’s Updated Asset Allocation Strategies

Each year, our Dynamic Strategic Asset Allocation process requires that we define the economic and market environment guiding our asset allocation decisions and update our Price Matters<sup>SM</sup> capital market assumptions (expected return, risk, and correlation figures). These elements of our asset allocation process were discussed in the March 29 and May 5 *Strategic View* publications. This year, the lessons of the 2008 financial crisis prompted the most ambitious enhancements to our process since we first began generating asset allocation guidance nearly eight years ago. These new capabilities combined with our established economic and capital market assumptions processes to produce our updated asset allocation strategies.

We spent much of the past year designing and building a new optimization process to guide our asset allocation decisions. We believe that this new methodology addresses many of the shortcomings that 2008 exposed in the traditional optimization tools<sup>1</sup> (techniques first pioneered by Nobel laureate Harry Markowitz). As detailed in this publication, our optimization incorporates Price Matters<sup>SM</sup> concepts and investors’ time horizons into our definition of risk. It also allows for correlations that spike during market crises, “black swan” downside risks, expected returns that vary with market valuation, and other assumptions that we believe more accurately reflect actual market behavior. With a more complete model of investment risk and more realistic assumptions about market behavior, we believe our new methodology optimizes the trade-off between risk and potential return more accurately than traditional optimization techniques.

### Our New Asset Allocation Models

Summarizing the previously published insights from our economic framework and capital market assumptions work, we define four potential economic scenarios based upon different combinations of likely policy decisions (Stick with Stocks, Bond Investors Beware, Commodities are King, and Seek a Safe Harbor). Equities are the best-performing asset class in two of the four scenarios, long-term bonds fare poorly in all of them, and the inflation protection provided by commodities comes with significant downside risks. The rally in risk assets from the depressed levels of early 2009 has reduced expected returns for equity asset classes from 9% to 12% in 2009 to approximately 5% to 6%, but those returns look relatively attractive compared to the limited upside and substantial downside potential offered by longer term bonds.

**Combining these insights with our new optimization techniques leads to the following changes in our asset allocation:**

- **Risk assets such as equities and high yield have been reduced by between 5% and 15% across all balanced portfolios, but remain above our benchmarks.** Our Price Matters<sup>SM</sup> framework calculates expected returns and downside risks as a function of the price paid for an asset class. The extremely depressed valuations seen early in 2009 reduced downside risks and allowed for significant allocations to risk assets even in our more conservative portfolios. The substantial rally of the past year has decreased potential returns and increased downside risks; therefore, allocations have been reduced. However, **because extremely high valuations have increased the current risks of traditional alternatives to equities, such as investment grade bonds, our risk asset weightings remain above average.**
- **Short maturity investment grade bonds have replaced longer maturity bonds as the risk reducer in our model portfolios.** Short maturity bonds greatly reduce the risks posed by longer maturity alternatives in inflationary environments. Short maturity bonds cannot provide deflation protection, but our economic framework suggests low risk of deflation thanks to the Federal Reserve’s proven willingness to print money. **The primary risk to portfolios with heavy weightings in this asset class is the drag on portfolio returns associated with historically low yields and therefore low potential upside returns.**

<sup>1</sup> Mean Variance Optimization (MVO) is a quantitative asset allocation technique that allows a portfolio manager to use diversification to balance the risk and return in a portfolio. Fat-tailed downside risks have greater-than-normal extreme outcomes.

- Micro cap stocks did not appreciate as rapidly as mid cap and small cap alternatives over the past year, perhaps due to far fewer packaged investment options in this asset class. As a result of this underperformance, **we think micro caps offer a substantial potential return advantage over comparable-volatility asset classes and have been added to all growth portfolios and to Long Term Growth & Income.**
- In our optimistic scenarios, emerging market equities offer the best potential long-term returns of any asset class while low debt levels and high interest rates suggest attractive potential returns for the currencies and domestic bond markets of these countries. **With high correlation to commodities and better potential returns, our new optimization favored emerging market equities, currencies, and short-term bonds over an explicit allocation to commodities.** The currencies and bonds of these low-debt countries offer the additional advantage of potential insurance should debt problems continue to weigh upon the dollar, euro, and yen.
- **During normal market environments, our new optimization process embeds comparable diversification advantages in developed international equity markets (i.e., Europe, the United Kingdom, and Japan) and REITs and comparable risks during market crises (correlations on both asset classes approach 1.0).** Expected returns were improved by moving a portion of portfolio assets out of developed international equities and into REITs since these two asset classes have not been highly correlated to one another during normal market environments in the past.
- **High yield bonds are one of the few asset classes currently offering appreciable yield. This relative advantage combined with declining default expectations leads to continued high weights in this asset class.** Emerging market bonds issued in dollars, on the other hand, typically have long durations and are currently trading at fairly low yields relative to Treasuries. As a result, we believe this asset class offers risks similar to those of investment grade bonds should inflation rise.

**Our New Asset Allocation Models -- Still overweight higher risk assets, but less so**



For a detailed listing of our asset allocation percentages by detailed asset classes, please see our secured advisor only web site at [www.riverfrontig.com](http://www.riverfrontig.com).

## Moving Beyond Markowitz – Our New Asset Allocation

RiverFront’s new optimization techniques extend the concepts and analytical framework underlying our Price Matters<sup>SM</sup> capital market assumptions process to portfolio optimization. The key difference between our Price Matters<sup>SM</sup> approach and the more traditional asset allocation techniques pioneered by Markowitz, Fama, and Sharpe is the concept of mean reversion. Traditional asset allocation mathematics is predicated on the assumption that markets behave like a coin toss. No matter how many years the market has posted positive returns, the odds of the market going up or down does not change (just like the odds of tossing heads instead of tails is always 50/50).

RiverFront’s Price Matters<sup>SM</sup> framework, by contrast, is predicated on the notion of mean reversion. Under mean reversion, the market’s coin is not always weighted to give an even chance of heads (positive returns) or tails (negative returns). If a long string of above-average returns results in above-average valuation levels, then the odds of a market decline increase. Similarly, a long string of poor returns increases the odds of market appreciation. Thus the higher the starting price, the lower the potential returns and the lower the starting price, the higher the potential returns. Simply put, Price Matters<sup>SM</sup>!

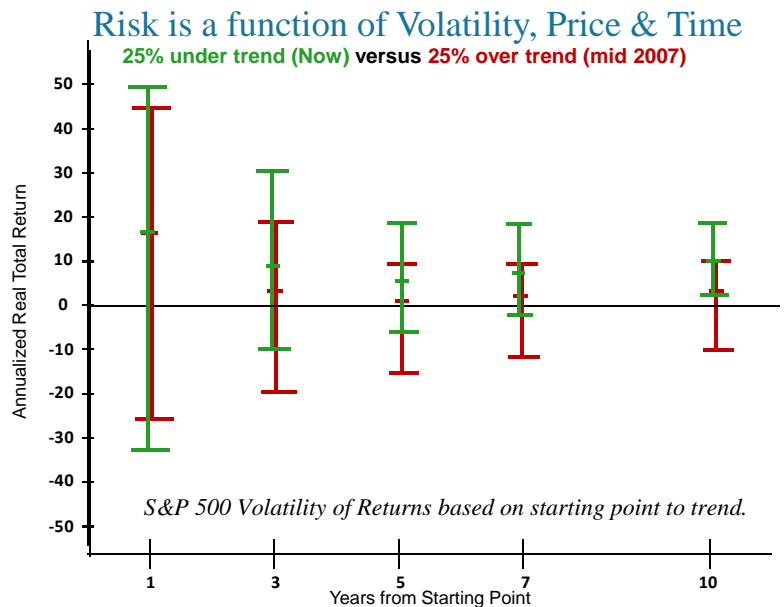
We have long used this concept to build mathematical models that relate the distance from the long-term trend at the beginning of historical periods to the returns investors ultimately received. Applying this concept to optimizing asset allocation strategies required building software that could replicate this mean-reverting behavior within an optimization process. This task was complicated by the need to simultaneously account for the expected returns, correlations, and mean-reversion behavior of more than a dozen asset classes. We believe that incorporating mean reversion into the optimization process provides for a more accurate assessment of potential return. Traditional optimization can create a few extraordinary return environments that can give an upward bias to the returns of higher volatility asset classes due to the power of compounding. In addition to a more accurate assessment of potential returns, we believe that our new optimization process also provides for a more complete, accurate, and useful model of investment risk.

## A More Comprehensive Model of Investment Risk

Traditional optimization techniques measure risk exclusively as volatility -- the standard deviation of historical market returns. These traditional tools typically seek to build an asset allocation that offers the highest potential 1-year return for the amount of volatility (risk) assumed. We have always thought that volatility is a poor measure of risk because markets tend to produce large losses far more often than standard deviations would predict. In addition to being inaccurate, we believe volatility is also an incomplete measure of risk. In modeling risk within our new optimization tool, we first correct our volatility measure to reflect a higher probability of large losses (black swans). We then expand our definition of risk to include both price and time-horizon components.

Price affects investment risk because overvalued asset classes are more likely to fall in value than lower priced alternatives, and once they fall they tend to fall further. Time horizon has an impact on risk because higher volatility asset classes can serve up substantial declines over shorter investment horizons. However, our belief in mean reversion suggests that over longer investment horizons painful declines tend to be somewhat offset by positive returns.

The chart above shows large cap returns for 1- through 10-year historical investment periods. The red bars shows all historical periods that began with large cap stocks priced about 25% above their long-term trend, the level of valuation seen in US markets near the peak of the market in the fall of 2007. The green bars reflect all historical periods that began with valuations close to current levels of about 25% below the long-term trend. The chart shows that the probability of



experiencing severe 1-year declines (or substantial gains) is primarily a function of asset class volatility. Whether the market is 25% over or undervalued does not change the range of 1-year returns appreciably. Thus for short time periods the volatility of an asset class is by far the most important measure of risk (lower volatility asset classes such as investment grade US bonds have produced such short term losses). However, as the time horizon lengthens valuation levels (price) become more and more important in measuring overall investment risk.

History shows the potential for declines of up to 45% over a 1-year period when the market is priced at 25% over trend, and it came very close to experiencing such a decline in the crash of 2008. However, the lowest three-year recorded annualized return for comparably priced markets has been a loss of about 18%. That means that market returns for the two years subsequent to the 45% decline were slightly positive even in the worst periods of market history. The odds of offsetting positive returns becomes even greater over five years (worst-case returns of about 10%) and still greater at the 7- and 10-year horizons. Since the odds of a big loss drop significantly over longer investment periods, time horizon has a significant impact on risk.

Price also has a powerful impact on risk. For periods that began 25% above the long-term trend, even investors with a 10-year investment horizon face little better than a 50/50 chance of making money. Contrast that with the green bars, which show returns for markets that began close to current valuation levels of 25% below trend. Unfortunately, potential losses at the 1-year level are only slightly better than the overvalued market (emotion typically trumps price over shorter time periods). Worst-case losses at the 3-year period, however, are about half those of the overvalued markets, and by the 5-year horizon, downside risks are less than 3% per annum as compared to a potential upside of nearly 20%. As time horizons extend, the risk/reward benefits become even more favorable, because historically large-cap equity markets have never produced a loss across a 10-year period that began with valuations 25% below trend.

Asset class volatility must be a part of any model of risk, in our view, because over shorter time frames these asset classes can experience larger losses, and buying at an attractive price offers little short-term protection (cheap asset classes can get even cheaper). However, the traditional focus on volatility as the sole measure of risk can cause critical investment mistakes, in our view. First, the standard deviation of historical returns may not convey as clear an understanding of potential risks as simply relating the maximum historical loss experienced (non-mathematicians have an instant understanding of the more simple measure of risk). Furthermore, because volatility does not incorporate valuation levels or the investor's time horizon into the risk calculation, investors can lose confidence in portfolio strategies that require sufficient time for mean reversion to have an impact on returns. Thus investors can be lured into increasing risks during rising markets or decreasing risks after market declines. By incorporating time horizon and price into our model, we believe we can provide a more comprehensive measure of risk for our clients; and better measures of risk should produce more suitable asset allocation solutions.

### **Risk Means Losing Money**

RiverFront's new optimization tools define risk the way we believe our clients do – as losing money. We measure the probability of losing money for every asset class at various time horizons. The probability of losing money is determined by the range of historical outcomes at each time horizon for periods beginning at current valuation levels. Thus, our definition of risk combines volatility, time horizon, and price into a single metric. Our optimization process seeks the combination of asset classes with the highest potential return subject to a low probability of loss across investors' time horizons.

As shown by the green bars in the chart above, large cap stocks have lost as much as 12% per annum across the 3-year period that began at current valuation levels. Our Conservative Growth & Income (CGI) portfolios are optimized for investors with a 3- to 5-year horizon, and therefore include a combination of asset classes that we believe are unlikely to lose money over the next 3 to 5 years, even in a worst-case scenario. If we include large cap stocks in our CGI allocation, we have to find a mix of other asset classes that is likely to offset the annualized 12% loss potential of large cap stocks. In calculating the offsetting behavior of other asset classes, we must incorporate the historical range of returns given their current valuation level and the tendency for correlations across risky asset classes to approach 1.0 in a market crisis.

Our new optimization process simulates multiple combinations of asset classes that meet the criteria of low probability of loss across a 3- to 5-year horizon and selects the one offering the highest potential returns. Under this methodology, the Conservative Growth & Income portfolio can accommodate a higher proportion of large cap stocks now than in 2007,

since the maximum loss experienced from current valuations is much lower and therefore the amount of offsetting, low risk assets can be lower as well. Similarly, our Moderate Growth & Income (MGI) portfolio has a substantially higher allocation to risky assets than CGI since this portfolio is optimized for 5 to 7 years, and the 2% to 3% maximum loss for large cap stocks that time frame requires far less of an offset to provide a net positive return.

By defining risk as the probability of losing money and by incorporating price and time horizon into our calculation of risk, we believe that we can better align our asset allocation strategies to our client’s true risk tolerance as market conditions change. For example, should large cap stocks return to the 25% overvalued position of 2007, the allocation to large cap stocks in our CGI and MGI portfolios would fall significantly since the magnitude of potential losses at the 3- and 5-year horizons would be much greater.

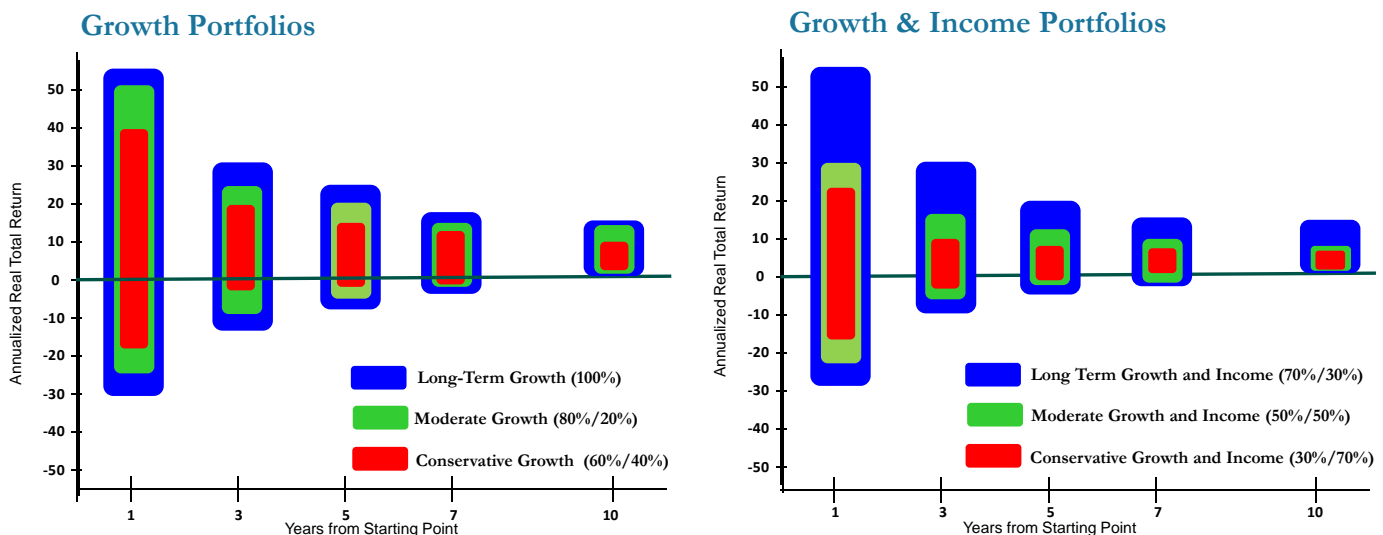
**Building Better Client Solutions**

RiverFront classifies investment objectives as either Growth or Growth & Income. Growth clients do not need current portfolio income and seek maximum growth of their assets subject to their risk tolerance. Growth & Income clients seek current income along with the potential for their income to grow over a long time horizon. We target these two objectives in our Conservative, Moderate, and Long-Term portfolios, but until now we defined risk for these six portfolios using the industry standard volatility. Our new optimization tools have defined investment horizons for each of our portfolios and our new asset allocations are designed to provide maximum potential Growth or Growth & Income subject to a minimum risk of loss at the designated horizon period. Since these horizon periods will not change (i.e., next year Conservative Growth & Income will again be optimized to a 3- to 5-year horizon), clients with a growing need for capital preservation could consider rolling to lower risk portfolios.

	3-5 Year	5-7 Year	7-10 Year	10+ Years
Growth & Income	Conservative	Moderate	Long-term	
Growth		Conservative	Moderate	Long-term

The charts below illustrate the trade-offs between downside risk and upside potential returns across various investment horizons for our Growth and Growth & Income portfolios.

**RiverFront Portfolio Risk Across Time**



**Conclusion**

The concepts and mathematical techniques underlying our new optimization process represent the culmination of 25 years spent building models of market behavior. However, we hope that the end result of all this mathematical complexity and sophistication will be simplicity. These new tools are designed to simply and clearly express the investment risks within every RiverFront product, and thus help investors to do a better job selecting the optimal investment solution.

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***Past performance is no guarantee of future results.***

**High-yield Securities** are subject to greater risk of loss of principal and interest, including default risk, than higher-rated securities.

**Small-, Mid-, and Micro-cap Companies** may be hindered as a result of limited resources or less diverse products or services and have therefore historically been more volatile than the stocks of larger, more established companies.

**International and Emerging Markets** investing involves exposure to risks including currency fluctuations, foreign taxes and regulations, and the potential for illiquid markets and political instability.

**Income-Oriented Equities** includes real estate investment trusts (REITs), master limited partnerships (MLPs), preferred stocks, closed end funds, and other equity structures that focus on income and/or growth of income. There are special risks associated with an investment in real estate, including credit risk, interest rate fluctuations and the impact of varied economic conditions. Investors in MLPs are likely to be subject to K-1 filings. The income and certain expenses of MLPs are passed through to the owners, who report and pay tax on the income. The K-1 is the form used to report each owner's share of income and certain expense items.

**Commodities** allows for a source of diversification for those sophisticated persons who wish to add this asset class to their portfolios and who are prepared to assume the risks inherent in the commodities market. Any commodity purchase represents a transaction in a non-income-producing asset and is highly speculative. Therefore, commodities should not represent a significant portion of an individual's portfolio.

**Standard deviation** is a measure of the dispersion of a set of data from its mean. The more spread apart the data is, the higher the deviation.

**RiverFront's Price Matters<sup>SM</sup> discipline** compares inflation-adjusted current prices relative to their long-term trend to help identify extremes in valuation.

Information provided in this report is for educational and illustrative purposes only and should not be construed as individualized investment advice. The investment or strategy discussed may not be suitable for all investors. Investors must make their own decisions based on their specific investment objectives and financial circumstances.