

Risk Parity Is About Balance

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Over twenty years ago Bridgewater Associates pioneered portfolio balancing concepts that came to fruition with the creation of the All Weather asset allocation strategy in 1996. Recently, several managers have begun to offer strategies based on some of these concepts, under the banner of “Risk Parity.” Adoption of these more balanced asset allocation strategies has surged in the institutional investment community, as investors increasingly realize that concentrated portfolios are dangerous and unnecessary for meeting their return requirements.

In the following article, Bob Prince, Co-Chief Investment Officer of Bridgewater, explains the concept of balance that lies behind the Risk Parity approach, and All Weather’s unique way of achieving reliable balance.

1980s-90s	1996	2003	2004	2005	2011-Present
<p>Bridgewater cements key investment principles: separate alpha & beta, allocate risk not capital, concentrated risk is imprudent</p> <p>Bridgewater creates its first ultra long duration nominal bond and global inflation-linked bond mandates, designed to balance clients’ equity risk</p>	<p>Bridgewater creates All Weather for Ray Dalio’s family trust</p>	<p>First institutional investor in All Weather</p>	<p>Bridgewater publishes seminal piece “Engineering Targeted Returns and Risks” explaining the principles of balance</p>	<p>Other managers begin offering “Risk Parity” products</p>	<p>Risk Parity gains broad acceptance & adoption</p> <p>80% of institutional investors are familiar with Risk Parity</p> <p>25% currently have an allocation; 25% are considering one</p> <p>45% of those with allocations are planning to add to their allocations; the remainder plan to maintain theirs*</p>

*Source: *aiCIO* magazine Fall 2011 Risk Parity Survey

Risk Parity Is About Balance

It is about balancing a portfolio’s risk exposures to attain a greater chance of investment success than what is offered by traditional, equity-centric approaches to asset allocation. We are very pleased to see investors moving in this direction, as we have been communicating and debating our “All Weather” principles of balanced beta with our clients and with the investment community for the past sixteen years. From these core principles the Risk Parity space was born. We want to take this opportunity to revisit those original principles, and to explain how we apply them to achieve **reliable balance**, which has proven its value in our real-time management of All Weather since 1996 and in 85 years of back-testing. The best way to achieve reliable balance is to design a portfolio based on a fundamental understanding of the environmental sensitivities inherent in the pricing structure of asset classes. This is the foundation of the All Weather approach.

The Problem with the Traditional Approach to Asset Allocation

The traditional approach to asset allocation tolerates higher short-term risk through a concentration of risk in equities in order to generate higher longer-term returns. A conventional portfolio has over half of its dollars and roughly 90% of its risk in equities. This approach has a serious flaw—if the source of short-term risk is a heavy concentration in a single type of asset, this approach brings with it a significant risk of poor long-term returns that threatens the ability to meet future obligations. This is because every asset is susceptible to poor performance that can last for a decade or more, caused by a sustained shift in the economic environment. These shifts occur with enough regularity that you are virtually certain to experience them in your lifetime. As a result, the long-term risk of holding a portfolio that is concentrated in equities, or in any other asset for that matter, is much greater than most investors realize and, in reality, too great for them to bear. *Unfortunately, this concentration is a form of risk that the world's pension fund industry has universally taken, leading to today's pervasive underfunded status.*

This form of long-term risk is unnecessary. While a balanced portfolio will have short-term risk, it can be neutralized to sustained shifts in the economic environment. This means that short-term risks can cancel out over time, allowing an investor to more consistently achieve the higher long-term returns that they desire.

Collect the Risk Premium, Mitigate Changes in Conditions

Twenty years ago we asked ourselves the following simple question:

What mix of assets has the best chance of delivering good returns over time through all economic environments?

We knew we couldn't get to a reliable answer through the traditional approach that depends on correlation and volatility assumptions. Correlations are unstable and unpredictable, and tend to change in the worst way at the worst possible time. Similarly, asset risk is difficult to predict and when things get bad, risks tend to spike higher. Moreover, most measures of risk do not adequately reflect the potential for sustained adverse environments that can produce sustained poor returns.

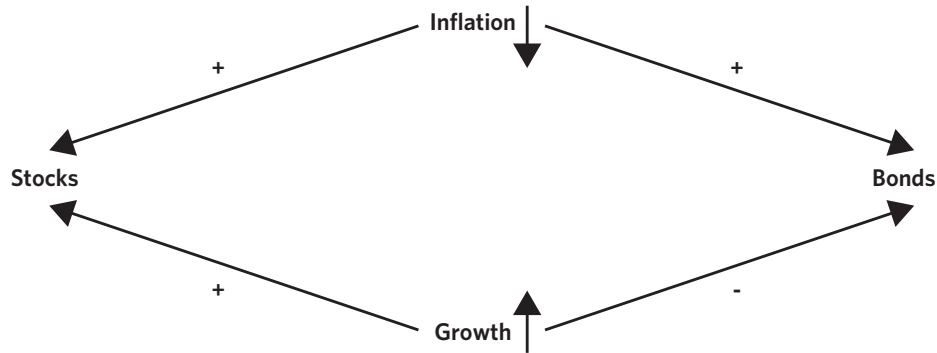
So to answer our question we returned to first principles of asset pricing to find basic truths that we could rely on. We identified two timeless and universal truths about asset pricing, principles that form the foundation of our approach:

1. Asset classes outperform cash over time.
2. Asset prices discount future economic scenarios.

These are the primary determinants of asset pricing because they reflect the essential ingredients that investors require from an investment transaction. Regarding the first, when you make an investment you transfer liquidity from your pocket to someone else's, and that transfer carries risk: giving up liquidity today creates the risk that you lose an opportunity to put that liquidity to work tomorrow. So an investment needs to offer you compensation (a risk premium) over and above what you could earn by keeping your money in cash. And by the same logic, the more risk you take, the more compensation you require. Regarding the second, the price of any asset reflects the discounted value of the asset's expected future cash flows. These expected cash flows, as well as the discount rate, incorporate expectations about the future economic environment, such as the level of inflation, earnings growth, the probability of default, and so on. As the environment and expectations change, the pricing of assets will change. For example, if inflation rises, expectations of the value of money tomorrow change, and this change in conditions will be priced into the value of assets today.

Given these two structural elements of pricing, the returns of any asset will have two main drivers: the accrual of and changes in the risk premium, and unanticipated shifts in the economic environment. The goal of strategic asset allocation then becomes clearer: it is to collect the risk premium as consistently as possible, by minimizing risk due to unexpected changes in the economic environment.

This framework also exposes why the traditional approach of relying on correlation and volatility assumptions to achieve this goal is flawed. For example, consider the correlation of stocks and bonds in light of the fact that they discount future economic conditions. Stocks give you a claim on future earnings, so they discount a future path of earnings growth and are worth more when earnings and the economy are stronger than expected. Bonds give you a fixed stream of payments and discount a forward path of interest rates for valuing those payments, so bonds do well when interest rates unexpectedly fall due to unforeseen economic weakness. In other words, these asset classes have opposite sensitivities to growth surprises. But they have the same sensitivity to inflation surprises. These relationships are summarized in the diagram below.



So if inflation were the only thing that mattered you would think that stocks and bonds would be positively correlated. But economic growth is also an important influence, and if economic growth were the only thing that mattered you would think that stocks and bonds would be negatively correlated. Given this, what will be the future correlation of stocks and bonds? You really can't know without knowing the future economic environment, which is a problem if you are trying to build one portfolio that performs well in all environments.

Environmental Balance Reliably Mitigates Shifts in Conditions

It is this understanding of the pricing structure of assets that led us to the All Weather approach. This approach recognizes that the only way to achieve reliable diversification is to balance a portfolio based on the relationships of assets to their environmental drivers, rather than based on correlation assumptions, which are just fleeting byproducts of these relationships. To do this, we recognize that while asset classes offer a risk premium that is by and large the same once adjusting for risk, their inherent sensitivities to shifts in the economic environment are not the same. Therefore you can structure a portfolio of risk-adjusted asset classes so that their environmental sensitivities reliably offset one another, leaving the risk premium as the dominant driver of returns.

We explained the instability of the correlation between stocks and bonds in terms of their opposing biases to economic growth and their similar biases to inflation. Indeed, while asset prices incorporate expectations about a wide range of economic factors, growth and inflation are the most important. This is because the aggregate cash flows of an asset class and the rate at which they are discounted are determined largely by the volume of economic activity (growth) and the pricing of that activity (inflation). As a result, asset class returns will be largely determined by whether growth comes in higher or lower than discounted and whether inflation comes in higher or lower than discounted, and how discounted growth and inflation change. The relationships of asset performance to growth and inflation are reliable—indeed, timeless and universal—and knowable, rooted in the durations and sources of variability of the assets' cash flows.

The All Weather approach exploits these reliable relationships by holding similar risk exposure to assets that do well when (1) growth rises, (2) growth falls, (3) inflation rises, and (4) inflation falls (all relative to expectations), through four sub-portfolios which are designed to capture these four risk exposures. We spread our risk evenly across these four sub-portfolios because we do not assume that the market has any systematic tendency to over- or under-discount future growth and inflation.

	Growth	Inflation
Rising	25% of risk	25% of risk
Falling	25% of risk	25% of risk

The result of this balance is that the underperformance of a given asset class relative to its risk premium in a particular environment (e.g., nominal bonds in higher than expected inflation) will automatically be offset by the outperformance of another asset class with an opposing sensitivity to that environment (e.g., commodities), leaving the risk premium as the dominant source of returns, and producing a more stable overall portfolio return.

As an illustration of the reliability of this environmental framework, below we show the historical performance of stylized two-asset rising and falling growth and inflation sub-portfolios, with the impact of the variable risk premium removed, to isolate the effects of shifts in the economic environment. By and large, rising growth/inflation assets responded similarly in magnitude but opposite in direction to falling growth/inflation assets. So balancing rising assets against falling assets would have reliably mitigated the impact of these environmental shifts. This approach is designed to provide reliable balance because it is derived from an understanding of the inherent nature of the pricing structure of assets, and does not depend on unreliable correlation or volatility assumptions.



Rising growth represented by risk-matched commodities minus IL bonds, falling growth represented by risk-matched nominal bonds minus stocks, rising inflation represented by risk-matched commodities minus stocks, falling inflation represented by risk-matched nominal bonds minus IL bonds. For illustrative purposes only. The example does not necessarily indicate the actual historical or current implementation of Bridgewater's strategies.

Environmental Balance Outperforms at Any Return/Risk Level

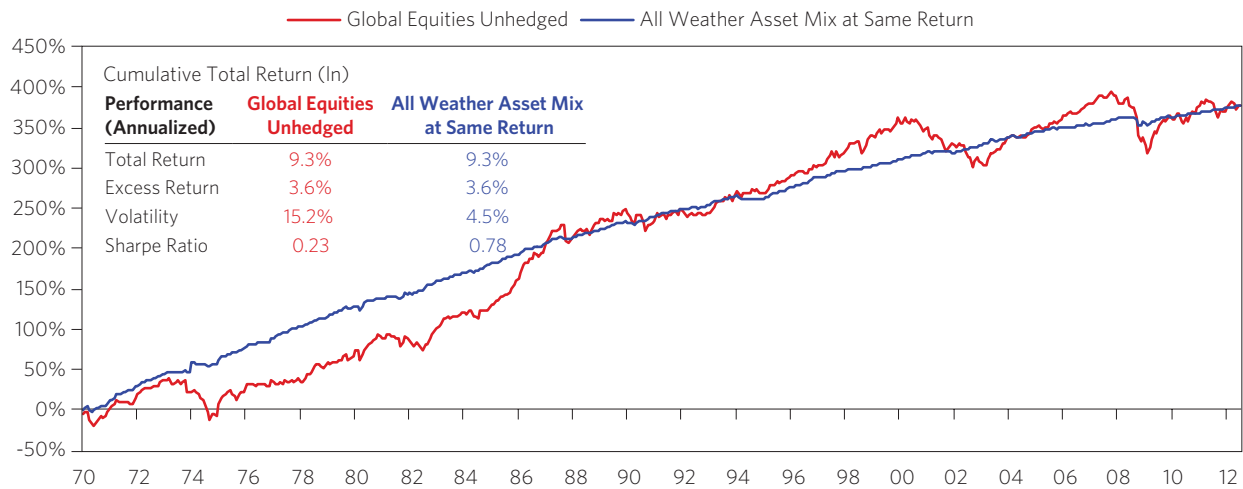
There is no tradeoff between diversification and target returns. A balanced portfolio offers a higher ratio of return-to-risk than a concentrated one—we expect All Weather to deliver a return-to-risk ratio roughly double that of the traditional, equity-dominated portfolio. This higher ratio can be exploited to achieve the same return with less risk, or greater return for the same risk, or somewhere in between. A higher ratio can be harnessed in these different ways because a portfolio's return is just the average of the returns of its component assets, and the return and risk of each asset can be adjusted to any reasonable level by borrowing or lending at the risk-free rate. As an example, a balanced portfolio can match the expected return of a portfolio 100% invested in equities, but will do so with a much lower level of risk. The charts on the following page show the cumulative returns and drawdowns (peak to trough declines) of a fully balanced portfolio vs. those of a portfolio that is 100% invested in global equities. The balanced portfolio achieved the same return with around one-third the risk. The same returns were achieved with much smaller losing periods, and these losing periods passed relatively quickly rather than lasting for many years.

Since 1996, our All Weather approach has been stress-tested through significant bull and bear markets in equities, two recessions, a real estate bubble, two periods of Fed tightening and Fed easing, a global financial crisis and periods of calm in between. Through these varied environments the All Weather asset allocation mix has achieved a Sharpe Ratio in line with the 0.6 expectation that we established at the outset of the strategy, and also in line with its performance over 85 years of back-testing. At the normal 10% targeted risk All Weather has outperformed major asset classes as well as the traditional portfolio, with much less risk per unit of return.

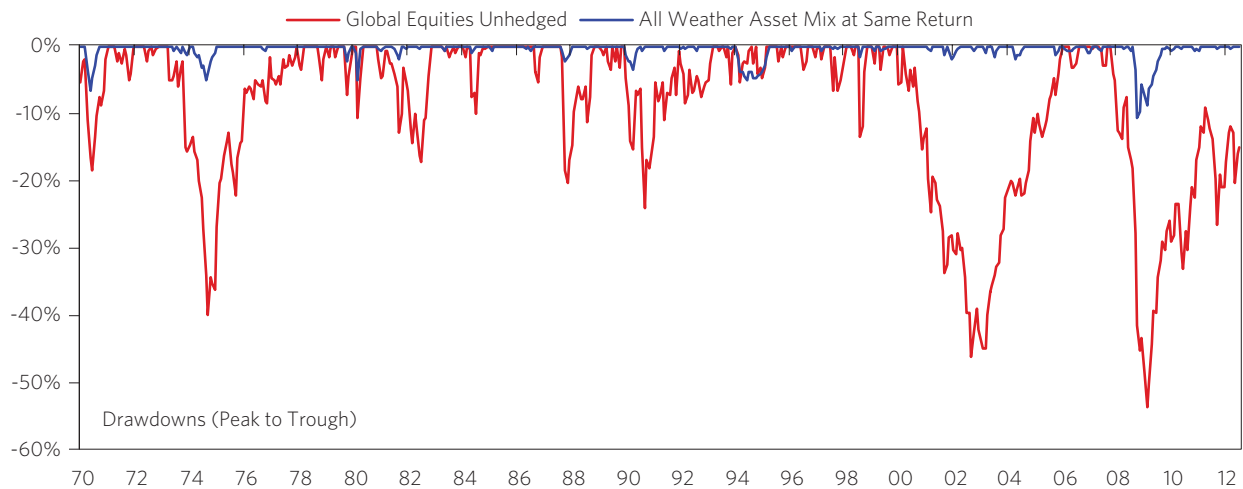
Risk Parity is catching on because investors are realizing that balance is a superior approach to asset allocation. However, it is not safe to blindly assume that all Risk Parity approaches are the same or will perform reliably through all environments. We would be wary of approaches that are overly engineered, or that depend on estimating future correlations and volatilities. It is more reliable to estimate the risks and diversification properties of assets based on a fundamental understanding of their pricing characteristics and approximate assessments of their risks than with complex or overly precise quantitative measures. Also worrying are strategies that include alpha bets but do not appropriately size the amounts of alpha and beta based on the quality of each return stream. To be clear, we do not believe that All Weather approach is the only good approach to balanced beta. But it is the most reliable approach that we know of, and its long-term track record speaks to its quality.

Most institutional portfolios are badly out of balance. The returns of most institutional portfolios are 90+% driven by the return of equities, exposing them to a single adverse event which could last for decades, a poor performing equity market. Given the current choices available, not balancing the portfolio is so risky as to be imprudent.

A Balanced Portfolio Achieves the Same Returns as Equities with 1/3 the Risk...



...And with Less Frequent, Smaller & Shorter Losing Periods



Data shown are gross of fees. HYPOTHETICAL PERFORMANCE RESULTS HAVE MANY INHERENT LIMITATIONS, SOME OF WHICH ARE DESCRIBED BELOW. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. IN FACT, THERE ARE FREQUENTLY SHARP DIFFERENCES BETWEEN HYPOTHETICAL PERFORMANCE RESULTS AND THE ACTUAL RESULTS SUBSEQUENTLY ACHIEVED BY ANY PARTICULAR TRADING PROGRAM. ONE OF THE LIMITATIONS OF HYPOTHETICAL PERFORMANCE RESULTS IS THAT THEY ARE GENERALLY PREPARED WITH THE BENEFIT OF HINDSIGHT. IN ADDITION, HYPOTHETICAL TRADING DOES NOT INVOLVE FINANCIAL RISK, AND NO HYPOTHETICAL TRADING RECORD CAN COMPLETELY ACCOUNT FOR THE IMPACT OF FINANCIAL RISK IN ACTUAL TRADING. FOR EXAMPLE, THE ABILITY TO WITHSTAND LOSSES OR TO ADHERE TO A PARTICULAR TRADING PROGRAM IN SPITE OF TRADING LOSSES ARE MATERIAL POINTS WHICH CAN ALSO ADVERSELY AFFECT ACTUAL TRADING RESULTS. THERE ARE NUMEROUS OTHER FACTORS RELATED TO THE MARKETS IN GENERAL OR TO THE IMPLEMENTATION OF ANY SPECIFIC TRADING PROGRAM WHICH CANNOT BE FULLY ACCOUNTED FOR IN THE PREPARATION OF HYPOTHETICAL PERFORMANCE RESULTS AND ALL OF WHICH CAN ADVERSELY AFFECT ACTUAL TRADING RESULTS.

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The All Weather asset mix performance is simulated based on All Weather asset mix weights applied historically to representative market series or constructed market series. The returns used for constructed market series may be limited by the ability to find appropriate inputs and, as is such, are actual market returns where available and Bridgewater Associates' estimates otherwise. The All Weather asset mix weights are determined based on proprietary calculations and over time the inclusion or exclusion of an asset class is accounted for only as of the most recent update date. No claim is being made of the All Weather Asset Mix's ability to perform in absolute terms or relative to any market return in the future, during market events not represented or during market events occurring in the future. Market conditions and events vary considerably, are unpredictable and can have unforeseen impacts resulting in materially adverse performance results.