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PUTTING RISK PARITY TO WORK

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Interest in risk based investing has grown steadily in the post-crisis years, as investors seek to overcome the limitations of traditional approaches to asset allocation. Some are now setting their strategic asset allocation by applying a risk factor framework across their entire portfolio; others are exploring risk parity strategies, probably the most popular application of the risk factor approach. Risk parity strategies vary in implementation and continue to be refined, but they share a basic premise and objective: building a portfolio based on diversifying sources of return, in pursuit of strong, consistent returns and avoidance of drawdowns in recessions and periods of economic stress.

Despite the interest, there remains confusion about how to put risk parity to work. In roaring bull markets, when equities significantly outperform every other asset class—and investors are rewarded for concentrated rather than diversified risk—the questions become all the more challenging. As investors think about putting risk parity to work, they encounter four closely intertwined questions:

- Where does it fit in a portfolio?
- What can they expect of it over time?
- How do they benchmark it?
- How much to allocate?

We'll consider each of these questions in turn.

Where does risk parity fit in a portfolio?

As with any investment decision, investment objectives should guide investors in finding where risk parity best fits in their portfolio. Investors seeking to lower risk without sacrificing expected returns may consider allocating assets from their equity portfolio to risk parity strategies. If the aim is to boost returns with only a modest increase in risk, the investor could consider redistributing funds from fixed income. If the aim is to do both, investors can consider moving money from both equities and bonds into a liquid alternative or absolute return bucket.

Risk parity is a bridge between the hedge fund world and the traditional index world. It shares some of the characteristics typically found in hedge funds, where a wide range of instruments and asset classes is used in an unconstrained manner to seek increased returns. At the same time, risk parity's liquidity, transparency, fees and low turnover make it more akin to a classic balanced portfolio (see Figure 1).

FIGURE 1: A VERSATILE STRATEGY

Risk Parity Can Replace Public Equity, Fixed Income or Alternatives

Investor's objective	Where risk parity fits in the portfolio
Reduce risk (without sacrificing expected returns)	Public equity replacement
Increase returns (with modest impact on portfolio risk)	Fixed income replacement
Increase expected return and reduce risk	Liquid alternatives/absolute return (pro-rata replacement)
Investors also use risk parity as an approach to asset allocation at the plan level.	

The opinions expressed are as of March 31, 2014 and may change as subsequent conditions vary.

What can you expect of risk parity over time?

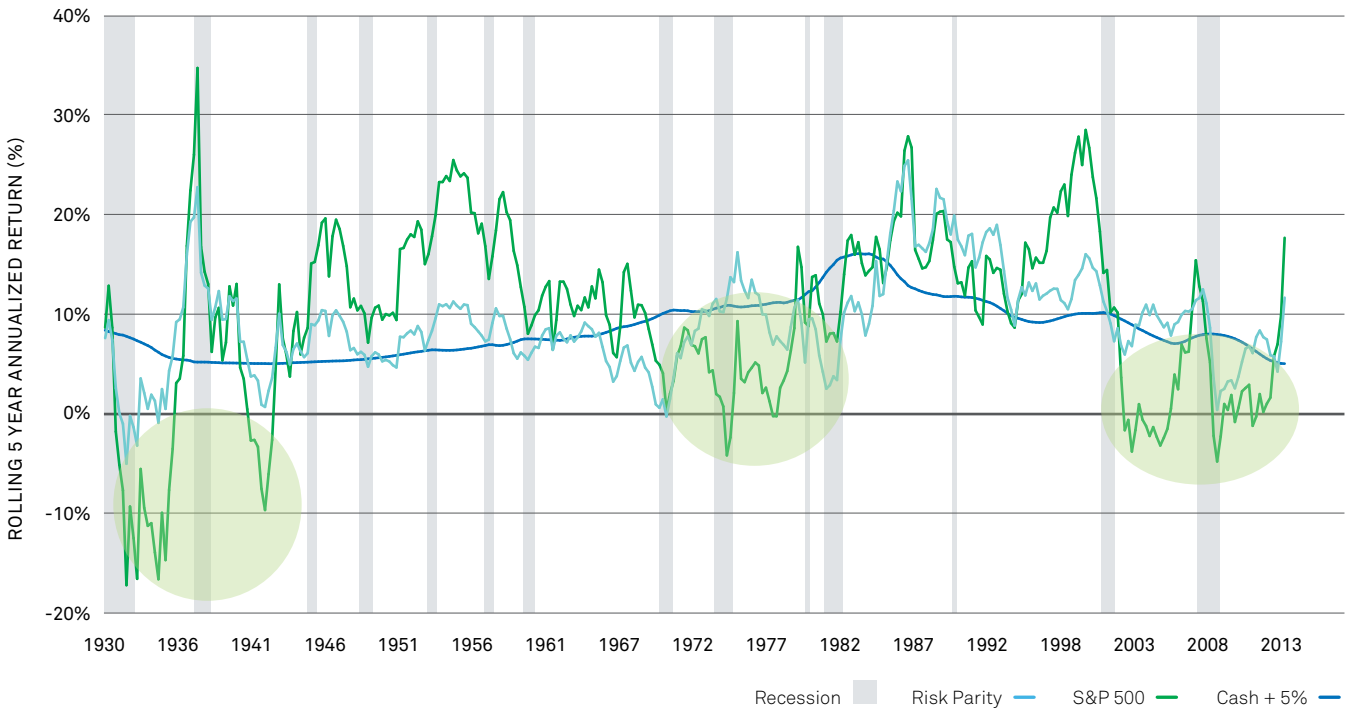
The key to this versatility has been risk parity's consistency in returns versus equities, and resulting ability to deliver compound returns over long historical periods (see Figure 2). Though risk parity itself dates back only 20 years at most, it is possible to model the performance of a simplified, generic risk parity strategy over decades, including the most challenging periods in market history. The modeling shows that risk parity may deliver equity-like returns over the long term without having to endure equities' roller-coaster highs and lows even in a rising rate environment. (For more detail, see BlackRock's white paper, "Will Rising Rates Sink Risk Parity?" September 2013.)

On average, both equities and the simulated risk parity strategy in Figure 2 have delivered 5% above cash over the long term. Yet the pattern of returns for risk parity has been much more stable. In a world where it is very difficult to outsmart the market, and impossible to predict when the next dislocation will occur, risk parity can potentially offer a truly balanced set of exposures with much less susceptibility to recessions than equities.

Additionally, equities tend to suffer their sharpest losses at times when investors can least afford them: recessions. At these times, everybody suffers. Individuals lose jobs and watch their home values slide, while cyclical companies see revenues and profits fall. State tax revenues also drop substantially during recessions. In these conditions, it is nearly impossible for many companies, states, or individual investors to make contributions to their pension plans, let alone increase them. Hence, the allure of a strategy —like risk parity—that has a history of beating equities during recessions (see Figure 3).

FIGURE 2: SMOOTHING RETURNS OVER TIME

Equities Have Seen Prolonged Drawdowns; Risk Parity Has Not



Sources: BlackRock, US Federal Reserve, Ibbotson, Datastream, Bloomberg, Standard & Poor's, Goldman Sachs, National Bureau of Economic Research

This exhibit shows how risk parity has performed in rolling five-year periods versus equities and cash plus 5% since 1930.

Pre-1970: The risk parity strategy is a 25%/75% allocation of the S&P 500 (and predecessor indexes) and the Ibbotson Intermediate-Term Treasury Index with notional exposure of 1.8X capital invested. Post 1970: The risk parity strategy is a 22%/62%/16% allocation of the S&P 500, the Ibbotson Intermediate-Term Treasury Index and the GSCI Commodity Index with notional exposure of 1.85X capital invested. Both pre- and post-1970 target a risk level of 10% and equal risk allocation among all three components, assuming zero correlations at volatilities of 15%/5%/20%. Thirty percent of capital is invested in T-bills to meet margin calls. Notional exposure is greater than capital invested. We assume a 50-bps spread over T-bills for derivatives financing. Index performance is for illustrative purposes only. You cannot invest directly in an index. Performance returns for strategies do not reflect any management fees, transaction costs or non-financial expenses. Past performance is not indicative of future returns.

Equity losses like the ones in Figure 3 can be devastating to any investor, but can be especially dangerous for underfunded pension plans in a state of negative cashflow, with benefit payments exceeding contributions. As we discuss in the accompanying sidebar, basic math shows that after a plan loses 50% of its assets it needs a 100% gain to recover. The need to make payouts to retirees exacerbates the problem.

FIGURE 3: RECESSION RESISTANT

Stocks Saw Sharper Drawdowns Than Risk Parity

US Recession*	Equity Drawdown	Risk Parity Drawdown
Great Depression	-73%	-38%
Recession of 1937 – 1938	-57%	-23%
Recession of 1945	-4%	-2%
Recession of 1949	-12%	-4%
Recession of 1953	-9%	-6%
Recession of 1958	-15%	-8%
Recession of 1960 – 1961	-8%	-2%
Recession of 1969 – 1970	-29%	-17%
Recession of 1973 – 1975	-43%	-13%
Early 1980s Recession	-17%	-21%
Early 1990s Recession	-15%	-1%
Early 2000s Recession	-45%	-12%
Great Recession	-51%	-36%

Sources: BlackRock, Ibbotson, Datastream, Bloomberg, Standard & Poor's, Goldman Sachs, National Bureau of Economic Research

* Recessions of 8 months or more.

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Recession periods: August 1929-March 1933; May 1937-June 1938; February 1945-November 1945; November 1948-October 1949; July 1953-May 1954; August 1957-April 1958; April 1960-February 1961; December 1969-November 1970; November 1973-March 1975; July 1981-November 1982; July 1990-March 1991; March 2001-November 2001; December 2007-June 2009.

The arithmetic of risk parity

In Figure 2 we illustrated that equities have seen prolonged drawdown periods while risk parity has not. However, it also shows that equities appear to experience periods of much higher positive returns in percentage terms than risk parity. But average return is far from the whole story—especially for investors making benefit payments that exceed inflows from contributions.

Let's look at the comparative performance of risk parity and equities measured annually for the six years from the end of 2007 to the end of 2013. On the surface, equities appear superior, beating risk parity by an average 2.4% each year over the past six years. However, the cumulative return on equities and risk parity is nearly identical over this period.

The story even gets more interesting if we make it more realistic. Many pension plans have more cashflows out of the plan than into the plan. Even if this is not true every year, it is often especially hard to make contributions in recessionary periods after there have been equity drawdowns, such as early 2009. Making benefit payments after a drawdown similar to 2008 further crystallizes losses and makes it even harder to catch up. If we take $5 out of the plan at the end of each year in the example below, risk parity ends with 7% more capital than equities.

The Path of Returns Matters		
	Risk Parity	Equities
2008	-17.9%	-37.0%
2009	9.7%	26.4%
2010	19.1%	15.1%
2011	13.2%	2.1%
2012	9.8%	16.0%
2013	7.1%	32.4%
Beginning dollar value	$100	$100
Average return	6.8%	9.2%
End dollar value (assume no flows)	**$143**	**$144**
End dollar value (assume $5 out each year)	**$103**	**$96**

Sources: BlackRock, Ibbotson, Datastream, Bloomberg, Standard & Poor's, Goldman Sachs, National Bureau of Economic Research. This example is hypothetical and shown for illustrative purposes only.

The risk parity strategy is a 22%/62%/16%allocation of the S&P 500, the Ibbotson Intermediate-Term Treasury Index and the GSCI Commodity Index with notional exposure of 1.85% capital invested. The risk parity strategy targets a risk level of 10% and equal risk allocation among all three components, assuming zero correlations at volatilities of 15%/5%/20%. Thirty percent of capital is invested in T-bills to meet margin calls. We assume a 50-bps spread over T-bills for derivatives financing. Index performance is for illustrative purposes only. You cannot invest directly in an index. Past performance is not indicative of future returns. Performance returns for strategies do not reflect any management fees, transaction costs or non-financial expenses.

How do you benchmark risk parity?

Risk parity is an approach to asset allocation. Therefore, evaluating performance of risk parity strategies is similar to evaluating the performance of a strategic asset allocation. Specifically, investors are ultimately concerned with the long-term result of their policy decisions and their risk over shorter horizons. In Figure 4, we evaluate risk parity against this dual objective with data back to 1926:

- Over medium-to-long horizons, a total return objective of cash +5%, consistent with the long-run expectations of risk parity shown in Figure 2. We use a 5-year reference for this purpose.
- Over shorter horizons, the risk of earning less than cash. We measure this over a one-year horizon.

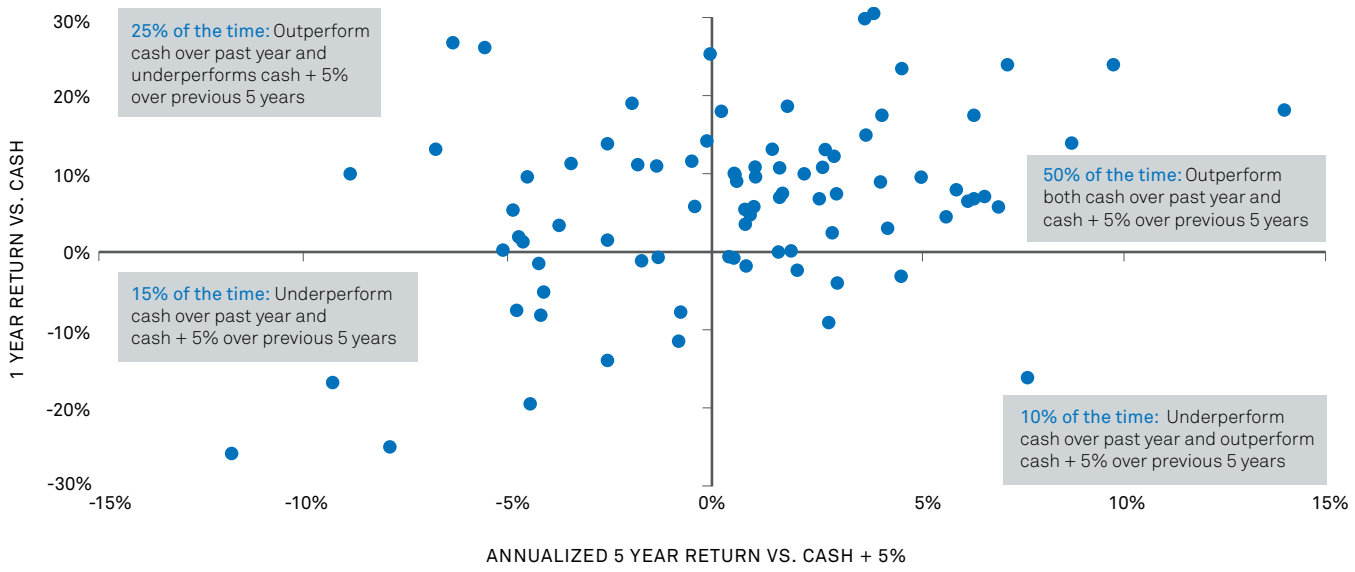
The horizontal axis tracks the strategy's performance versus cash + 5% over rolling five-year windows. On the vertical axis, the performance versus cash alone is evaluated over the previous year. The results show that 50% of the time risk parity achieves both objectives. It's also clear that no long-term strategic asset allocation can meet both goals in every period. The graph shows that this risk parity strategy has underperformed cash about 25% of the time; in 60% of all cases, however, risk parity still outperformed the cash +5% reference over five years. Most investors would much prefer this set of returns to the roller coaster returns delivered by equities.

From a governance perspective, it is also logical for investors to want to benchmark risk parity as they would any other strategy. The bad news is that there is high tracking error against any conventional benchmark. Adding to the difficulty, risk parity can take multiple forms, as different managers will choose different strategies. In Figure 5 we illustrate a variety of metrics that can be utilized to tackle the problem. Each metric has benefits and drawbacks, including large deviations in performance against risk parity.

The choice of benchmark is a question of preference and what the benchmark will be used for. A different benchmark may be used for manager selection and evaluation, long-term strategic planning, reporting, etc. In our experience a combination of benchmarks will be required. Regardless of the choice of benchmark it is crucial for investors to understand the market environments in which the investments can be expected to lag or beat the benchmark.

FIGURE 4: TAKE THE LONG – AND SHORT VIEW

Historical Record of Risk Parity vs. Cash (Past Year) and Cash +5% (Past Five Years) (1926-2013)



Sources: BlackRock, Ibbotson, Datastream, Bloomberg, Standard & Poor's, Goldman Sachs

Pre 1970: The risk parity strategy is a 25%/75% allocation of the S&P 500 (and predecessor indexes) and the Ibbotson Intermediate-Term Treasury Index with notional exposure of 1.8X capital invested. Post 1970: The risk parity strategy is a 22%/62%/16%allocation of the S&P 500, the Ibbotson Intermediate-Term Treasury Index and the GSCI Commodity Index with notional exposure of 1.85% capital invested. Both pre- and post-1970 target a risk level of 10% and equal risk allocation among all three components, assuming zero correlations at volatilities of 15%/5%/20%. Thirty percent of capital is invested in T-bills to meet margin calls. Notional exposure is greater than capital invested. We assume a 50-bps spread over T-bills for derivatives financing. Index performance is for illustrative purposes only. You cannot invest directly in an index. Performance returns for strategies do not reflect any management fees, transaction costs or non-financial expenses. Past performance is not indicative of future returns.

FIGURE 5: MANY WAYS TO MEASURE RISK PARITY...

Two Rolling Time Frames is Ideal, Echoing the Way Most Investors View Their Portfolios: Long- and Near-term

	Equities	60/40	Cash + X%	Custom/ Industry Benchmark	Peer Group	Statistical Benchmark
Rationale	Same long-term expected return as risk parity.	Traditional "balanced" fund. Same long-term risk as risk parity.	Risk parity seeks to deliver a premium over the risk-free rate.	Risk parity portfolio without any views or active management.	Average performance of major risk parity managers.	Long term asset allocation has long term return target and short term risk constraint.
Construction	100% Equities, usually global excluding EM and currency hedged.	60% Global equities 40% Bonds (usually domestic).	Total return cash index.	Weighted risk allocation to three to six asset class groups.	Average performance of managers.	1 Year period: Outperform cash 70% of time. 5 Year Period: Outperform cash + 5% 60% of time.
Pros	Is the most common funding source for risk parity.	Risk parity seeks to outperform the traditional balanced portfolio.	Consistent with objectives of risk parity.	Better representations of risk parity than conventional benchmarks.	Comparing relative performance of managers.	Fairest assessment of what a portfolio is trying to achieve.
Cons	Large deviations in performance against risk parity.	Equity-centric. Large deviations in performance against risk parity.	Mainly used for hedge fund investments. Does not provide insights into what risk parity does.	Requires a more complex structure designed to reduce shorter-term tracking error.	Not useful for strategic asset allocation.	Difficult to communicate.

Source: BlackRock

How much to allocate?

Risk parity is a relative newcomer to investment management, and many investors are still figuring out how to integrate it into their portfolios. Because it is not a single strategy, but an overall approach to asset management, it could ultimately represent the entirety of an investor's asset allocation. But regardless of the size of the position, portfolios show improvement in risk-adjusted performance when risk parity strategies are added to the mix. For those still in exploratory mode, it is useful to know there is a sweet spot for risk parity allocations.

Figure 6 shows that as portfolios move along a continuum from an entirely traditional asset allocation to a risk parity portfolio, the Sharpe Ratio improves more than 40%. Rather than having to overhaul an entire portfolio to benefit, investors can glean nearly half of that benefit with a 30% allocation to risk parity strategies. This is helpful for plan sponsors sensitive to peer comparisons—they can be forward-thinking without going too far out on the cutting edge. Here, the traditional portfolio is defined as the average asset allocation of large pension funds, as measured by the annual survey by Pensions & Investments. It has a Sharpe Ratio of 0.35.

The rationale for including risk parity is strong for many investors, including corporate defined benefit plans, public pension funds, multi-employer plans, defined contribution and individual retirement plans

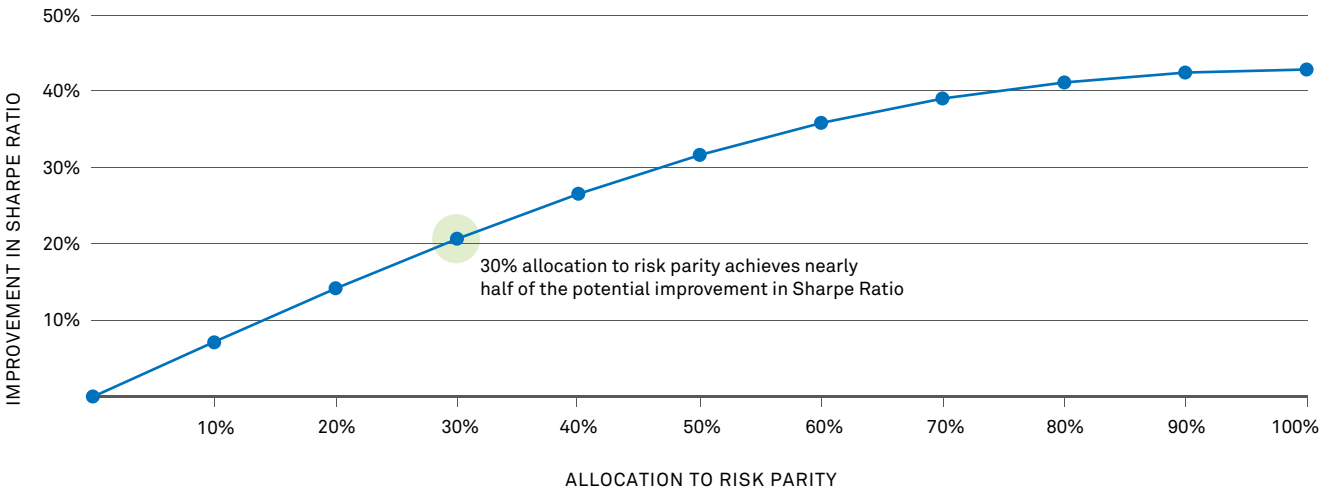
Corporate plans

For corporate plans, the key dimensions for evaluating risk parity include P&L, balance sheet and liquidity:

1. P&L: as shown earlier in the document, risk parity has the same expected return as equities. Therefore, substituting equities for risk parity does not impact pension expense or the company's bottom line.

2. Balance sheet: substituting equities for risk parity reduces the volatility of pension plan assets. Further, risk parity has a higher correlation with the reported market value of pension liabilities than equities do. Therefore, substituting risk parity for equities also reduces balance sheet volatility.

FIGURE 6: SIZING THE ALLOCATION



Sources: BlackRock, Ibbotson, Datastream, Bloomberg, Standard & Poor's, Goldman Sachs, Pensions & Investments Annual Survey of Top 1,000 Defined Benefit plans.

We assume a Sharpe ratio of .35 for the traditional portfolio (See "A Model Porfolio for Public Pension Plans," John Pirone, BlackRock.) and .5 for the risk parity (See Figure 2) with a correlation of .70 based on allocations below.

The Aggregate Asset Mix of the Top 1,000 DB plan was comprised of 27.8% domestic stock, 17.9% international stock, 2.9% global equity, 25.1% domestic fixed income, 2.2% global/international fixed income, 2.2% cash, 8.9% private equity, 6.8% real estate equity, 4.8% alternative investments and 1.4% other. Data as of September 30, 2012

3. Liquidity: risk parity has the same liquidity profile and GAAP classification as traditional balanced strategies

In a liability-driven investing reference framework (LDI), the risk parity would typically fit as a growth portfolio and would be paired with liability-matching assets.

Public plans and multi-employer collective bargaining plans

For public plans and multi-employer collective bargaining plans, risk parity should be considered with respect to target returns, liquidity and governance:

1. Requirement of total portfolio returns sufficient to achieve full funding in the future. These return targets can be met with equities, but due to the limited ability of many plan sponsors to contribute additional assets to meet any current or future deficits equity risk is often already too high.

2. For mature plans where pension payments exceed contributions, the liquidity characteristics of risk parity strategies are similar to equities or traditional balanced strategies as prices for all assets in risk parity strategies can be marked-to-market daily.

3. From a governance perspective, risk-based investing provides a simple long-term framework for setting policy discussions with stakeholders. A growing number of large public plans have explicitly created dedicated risk parity allocations and are starting to use it to set their overall strategic asset allocation.

Defined Contribution

For individuals, the criteria of eligibility as a default option, member behavior and retirement risk are critical:

1. Risk parity can be used as a default saving option. Risk parity strategies are more diversified than traditional asset allocation strategies from a risk perspective. Risk parity has so far been most commonly adopted as a component of a balanced portfolio of assets designed to meet the changing needs of investors as they age. It can also be offered as a standalone option.

2. For individual savings plans a critical aspect of success is to encourage investors to continue saving through multiple economic environments, including economic recessions. Equities have been historically subject to periods of substantial losses, which may deter continuous investment. The construction methodology for risk parity results in comparatively lower losses during recessions.

3. As individuals prepare to retire their investment horizon reduces. The need for return is however still there as individuals live longer. The risk diversification inherent in risk parity results in a lower likelihood of large losses, especially during recessions. The risk parity concept can be applied to create a strategy with varying degrees of risk. For individuals close to retirement a low level of outright risk would be desirable to reduce the possibility of large losses.

Conclusion

The risk-based approach to investing represents a significant evolution most institutional investors will find hard to ignore. With the proliferation of new asset classes and strategies, investment opportunities have become more complex to analyze than they were when the principles of strategic asset allocation were first laid out in the 1960's with the capital asset pricing model. By uncovering (i) risk allocations as well as capital allocations and (ii) the macro-economic factors behind the performance of all asset classes, investors gain a better understanding of how their risk budget is spent and ultimately investment outcomes meeting their expectations.

A growing number of institutions are putting risk parity to work.

To learn more about risk parity investing, please contact your BlackRock account manager.

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