The Risks of Risk Parity

Supporters Believe Risk Parity:
- Provides greater understanding of risk variables and relationships among asset classes
- Helps meet future liabilities by creating greater certainty regarding funding status
- Has delivered exceptional returns over the last two decades

Critics Believe Risk Parity:
- Is difficult to sync with variable liabilities (e.g., volatility in pension payouts)
- Narrowly frames “risk” as annualized volatility
- May underperform peers when equity markets are rising (especially if yield curves are flat or inverted)
- Entails additional risks when leverage is used, such as: liquidity, availability and cost (versus unleveraged), and may exaggerate fat tail events
- Does not consider valuations in asset class allocation

While risk parity offers potential advantages, its success hinges on key assumptions and a favorable environment for bonds. Like the traditional asset allocation approach it seeks to supplant, risk parity demands a long-term perspective. Unlike the traditional approach, however, risk parity uses a narrow definition of risk and makes no consideration for a critical element in long-term investing: valuations.

Reducing Equity Exposure to Lower Volatility

Risk parity is an asset allocation strategy designed so each asset class contributes equally to overall portfolio risk (as measured by volatility). In a traditional portfolio, equities may account for about 60% of the asset weighting, but more than 80% of the volatility. Risk parity attempts to lower the volatility from equity exposure within the portfolio, so it’s equal to or “at parity” with all other asset classes.

This is usually accomplished by reducing the allocation to equities. Then, leverage is applied to less volatile assets to try to enhance overall portfolio returns. The end result is a portfolio whose aggregate expected volatility approximates the asset owner’s risk tolerance level. This approach has delivered solid results over the last 20 years.

Comparing Traditional and Risk Parity Portfolios: Hypothetical Illustrations

Exhibit 1 shows the annualized returns and standard deviations for two hypothetical portfolios—one following a traditional, efficient frontier allocation; the other reflecting a risk parity strategy. Exhibit 2 on the next page illustrates the relationship between asset allocation, volatility and returns for these two methods of portfolio construction.

<table>
<thead>
<tr>
<th></th>
<th>Annual Return</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional Portfolio</td>
<td>8.26%</td>
<td>9.13%</td>
</tr>
<tr>
<td>Risk Parity</td>
<td>7.27%</td>
<td>6.05%</td>
</tr>
</tbody>
</table>

Source: FactSet, as of 12/31/2013. This hypothetical illustration is for illustrative purposes only and does not represent the performance of any specific product. Actual results will vary. Past performance is not a guarantee of future results. One cannot invest directly in an index.

Footnote:
1 Annualized returns and standard deviations were calculated using monthly data series via FactSet for the following indices: Barclays U.S. Aggregate Index, S&P 500 Index, S&P Global BMI ex-U.S. Index, S&P U.S. REIT Index, and the Dow Jones UBS Commodity Index. Calculations reflect the following assumptions: rebalancing back to target weights every December with no transaction costs and no fees.
While risk parity underperformed the traditional approach in this hypothetical example, it provided strong returns with lower standard deviation over the last 20 years. But can that continue?

- The traditional portfolio’s 52% equity allocation accounted for 61% of return, but 82% of volatility.
- Each of the risk parity portfolio’s asset classes made a roughly equal contribution to total volatility.
- While risk parity underperformed the traditional approach in this hypothetical example, it provided strong returns with lower standard deviation over the last 20 years. But can that continue?

Exhibit 2: Traditional & Risk Parity Allocations and Contributions to Total Portfolio Volatility and Return

Source: via FactSet; as of 12/31/2013. These illustrations are hypothetical. Your actual results may vary. No investment strategy can assure a profit or protect against loss. Past performance is not a guarantee of future results. One cannot invest directly in an index.

For more details on asset allocation, contribution to total portfolio volatility and return, see Exhibit A1 in the appendix.
As shown in Exhibit 2 on the previous page, the fixed income allocation of 58% in the risk parity portfolio accounted for 46% of the portfolio’s total return, but just 15% of its total volatility.

The graphics in Exhibit 2 do not illustrate other key considerations:

- Risk parity approaches view risk as volatility, but there are other types of risk, including default risk and failing to properly manage the duration of assets versus the duration of liabilities.
- Short-term price volatility, viewed as risk within a risk parity framework, can create opportunities for long-term value investors to maximize asset values and help meet liabilities.
- Asset allocations within a risk parity framework often are made without regard to valuations.

**Popularity of Risk Parity**

Good results and a sharper focus on managing volatility have contributed to increasing adoption of risk parity, including by these plan sponsors: Ohio PERS; Superannuation Arrangements of the University of London; Teacher Retirement System of Texas; Wisconsin State Investment Board; Pennsylvania Public Schools Employees’ Retirement System; and the Alaska Permanent Fund.

"The arguments for risk parity are not frivolous. Leverage adhered to over time can add to returns. And when does risk parity work well? When levered 10-year Treasuries make you money – so since 1981, you’d have been in seventh heaven. And that’s part of the appeal. The argument is when stocks go down, risk parity will make you money. But, it can really kill you when bonds go down and stock markets go down. That’s the key to whether this approach works. You can have devastating effects when equities and fixed income have bad returns. And while we haven't had a down stock and bond market year combined since 1981, from 1969-1981 every down stock year was accompanied by a down bond market (five times)."

— Bob Maynard

CIO, Public Employee Retirement System of Idaho (PERSI) and Brandes Institute Advisory Board Member

According to a recent survey by ai-CIO, 37.4% of respondents allocated assets to risk parity in 2013, up from 26.2% in 2012. Another 17.7% said they were considering the strategy. Brandes Institute Advisory Board Member Bill Raver has mixed thoughts. "Presentations on risk parity can be educational for plan trustees, highlighting the natural volatility levels of different asset classes, the role of leverage in portfolio construction, and how the behavior of individual asset classes can be ‘modified’ to suit a specific purpose,” Raver said. “But risk parity strategies do not typically include all of the asset class betas employed by institutional investors, limiting the opportunity set provided by global capital markets. And risk parity can interfere with the ability of a fund to tactically rebalance and pursue fresh opportunities whenever market valuations materially change.”

Risk parity’s success over the past two decades may be encouraging investors to adopt the strategy now—or extend it. But can the strategy continue its compelling performance? We share Raver’s cautious stance. And here’s why.

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3 ai-CIO surveyed 200 global corporate and public pensions, endowments, foundations, healthcare organizations and sovereign wealth funds regarding their views on risk parity investing.
Risk Parity Future Gains May Hinge on Low Yields

One of the main reasons risk parity strategies have performed so well relative to traditional approaches has been an unprecedented decline in bond yields. Greater allocations to fixed income (especially levered allocations) have boosted portfolio returns as yields have fallen from historic highs. “The decades-long decline in global interest rates has masked the performance of numerous investment strategies including, in my view, risk parity,” Raver said.

Exhibit 3 shows the yield on the 10-year U.S. Treasury bond dropped from 5.75% in 1994 to 1.91% in 2013—a decline of 384 basis points. Looking back a decade or so further, yields have tumbled from their peak of 14.6% in 1982—a decline of 1,268 basis points through 2013, the greatest bull market for bonds in history.

Looking ahead, for bond-heavy portfolios to extend their gains, yields must continue to fall. But that does not appear likely. In 2013, yields fell to lows (not seen since 1941) in May, then surged nearly 140 basis points through year end. While impossible to predict accurately, history suggests the next move in yields likely will continue to be higher—creating a significant headwind for risk parity strategies.


Risk Parity Evaluation

Exhibit 4 provides an extremely simple decision-making tree for evaluating some key points when considering risk parity. Even for those adopting or exploring the approach, Raver noted, “One of the biggest detractions for risk parity today is the limited amount of investment capacity in the general marketplace. There seems to be more talk about the product than vendors open to new business.”

Exhibit 4: Risk Parity Questions and Considerations

**EVALUATION**

Why are you considering risk parity?

Do you believe yields will rise?

Is volatility the primary risk you need to manage?

**CONSIDERATIONS**

- Volatility reflects only one type of risk.
- Risk parity approaches may have difficulty extending their two decades of strong returns with low volatility.
- Yields rose in 2013 from lows not seen since 1941.
- Given current yields, stocks may offer an attractive alternative to bonds.
- Valuations for stocks remain compelling.

**IMPLEMENTATION**

Will adding leverage help or hurt?

Can risk parity be implemented on a limited basis, or is it all or nothing?

What types of risk must be managed with a risk parity strategy? And how will this be done?

What is the relationship between price and valuation?
Appendix

Exhibit A1: Traditional & Risk Parity Allocations and Contributions to Total Portfolio Volatility and Return

The following tables provide details on asset allocation, contribution to total return and contribution to volatility for the traditional and risk parity portfolios created for the hypothetical example shown in Exhibit 2.

### Traditional Portfolio

<table>
<thead>
<tr>
<th>Allocation (%)</th>
<th>Contrib. to Returns (%)</th>
<th>Contrib. to Volatility (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Equity</td>
<td>37</td>
<td>46</td>
</tr>
<tr>
<td>Non-U.S. Equity</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>37</td>
<td>26</td>
</tr>
<tr>
<td>Real Estate</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Commodities</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: FactSet, as of 12/31/2013

### Risk Parity Portfolio

<table>
<thead>
<tr>
<th>Allocation (%)</th>
<th>Contrib. to Returns (%)</th>
<th>Contrib. to Volatility (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Equity</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Non-U.S. Equity</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>58</td>
<td>46</td>
</tr>
<tr>
<td>Real Estate</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>Commodities</td>
<td>12</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: FactSet, as of 12/31/2013. This hypothetical example is for illustrative purposes only. Actual results will vary. Past performance is not a guarantee of future results. One cannot invest directly in an index. Totals may not equal 100% due to rounding.

The Barclays U.S. Aggregate Bond Index is an unmanaged index consisting of U.S. dollar-denominated, fixed-rate, taxable bonds. The U.S. Aggregate Bond Index is a broad-based benchmark that measures the investment-grade, U.S. dollar-denominated, fixed-rate taxable bond market, including Treasuries, government-related and corporate securities, MBS (agency fixed-rate and hybrid ARM pass-throughs), ABS, and CMBS. The U.S. Aggregate rolls up into other Barclays flagship indices such as the multi-currency Global Aggregate Index and the U.S. Universal Index, which includes high-yield and emerging markets debt. The U.S. Aggregate Index was created in 1986, with index history backfilled to January 1, 1976. The index is a total return index which reflects the price changes and interest of each bond in the index.

The S&P 500 Index with gross dividends is an unmanaged, market capitalization weighted index that measures the equity performance of 500 leading companies in leading industries of the U.S. economy. The index includes 500 leading companies in leading industries of the U.S. economy, capturing 80% coverage of U.S. equities. This index includes dividends and distributions, but does not reflect fees, brokerage commissions, withholding taxes, or other expenses of investing.

The S&P Global BMI ex-U.S. Index is comprised of the S&P Developed BMI ex-U.S. and S&P Emerging BMI; it is a comprehensive, rules-based index measuring global stock market performance outside the United States. The index is float-adjusted, market capitalization weighted and includes security classifications for country, size, style and industry.

The S&P U.S. REIT Index defines and measures the investable universe of publicly traded real estate investment trusts domiciled in the United States.

The Dow Jones-UBS Commodity Index is a broadly diversified index that allows investors to track commodity futures through a single measure. The index is composed of futures contracts on physical commodities traded on U.S. exchanges, with the exception of aluminum, nickel and zinc, which trade on the London Metal Exchange (LME).

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No investment strategy can assure a profit or protect against loss.

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