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# Leverage Aversion and Risk Parity

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## Abstract

The authors show that leverage aversion changes the predictions of modern portfolio theory: Safer assets must offer higher risk-adjusted returns than riskier assets. Consuming the high risk-adjusted returns of safer assets requires leverage, creating an opportunity for investors with the ability to apply leverage. Risk parity portfolios exploit this opportunity by equalizing the risk allocation across asset classes, thus overweighting safer assets relative to their weight in the market portfolio.

In our article, we show that leverage aversion changes the predictions of modern portfolio theory: It implies that safer assets must offer higher risk-adjusted returns than riskier assets because leverage-averse investors tilt their portfolio toward riskier assets to achieve high unleveraged returns, thus pushing up the prices of risky assets and reducing the expected return on those assets. Therefore, safer assets are in relatively low demand and offer high risk-adjusted returns. Consuming the high risk-adjusted returns offered by safer assets requires leverage, which creates an opportunity for investors with the ability and willingness to apply leverage.

A risk parity (RP) portfolio exploits the high risk-adjusted returns of safer assets in a simple way—namely, by equalizing the risk allocation across asset classes and thus overweighting safer assets and underweighting riskier assets relative to their weights in the market portfolio. Although an unleveraged RP portfolio has a lower risk than the market portfolio (and the 60/40 portfolio) owing to the higher allocation to safer assets, the RP portfolio can be leveraged to achieve the same risk as the market portfolio and a higher expected return.

Consistent with our theory of leverage aversion, we found empirically that risk parity has outperformed the market over the last century by a statistically and economically significant amount. Indeed, in the United States, an RP portfolio with the same risk as the market portfolio outperformed the market portfolio by about 4 percent a year over 1926–2010. Furthermore, the RP portfolio delivered higher risk-adjusted returns than the 60/40 portfolio in each of the 11 countries covered by the J.P. Morgan Global Government Bond Index over 1986–2010. We performed extensive robustness tests and analyzed the related evidence across and within countries and asset classes.

Editor’s Note: The authors are affiliated with AQR Capital Management, LLC, which offers risk parity funds.



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