FIRST QUADRANT

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Is Diversification an Outdated Concept?

FQ Perspective


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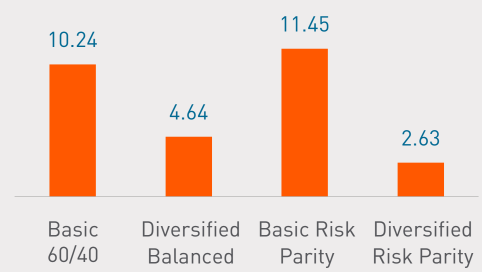
Introduction

The media have recently been reporting that risk parity funds have underperformed a basic 60% stock, 40% bond balanced allocation. The articles imply that this underperformance stems from a flaw underlying the risk parity or risk allocation methodology. This line of argument misses the fact that virtually all multi-asset funds have underperformed the 60/40 whether they allocate their assets based upon risk, or more conventionally, capital. In this paper, we will show that diversifying away from basic large cap developed market stocks and bonds accounts for the bulk of the recent underperformance for both risk parity and conventional strategies alike. In addition, within the recent environment, a basic, but concentrated, risk parity portfolio by and large would have beat the basic, but concentrated, 60/40 portfolio contrary to conventional wisdom. Based on our analysis, the chart below illustrates generally how detrimental diversification has been to both a conventional 60/40 and a basic risk parity portfolio. (The hypothetical portfolios[1] upon which we base our analysis will be defined in the body of the paper):

EXHIBIT 01 - THREE YEAR ANNUALIZED RETURN[1]
(JANUARY 2012 - OCTOBER 2015)



[1]**Based on hypothetical portfolio returns.**
Source: First Quadrant, L.P.

The result of our analysis has implications not only for multi-asset funds but for institutional plans as well. When "the only free lunch in investing" fails, most investors suffer. Those with the most diversified portfolios tend to suffer more, while those who concentrate their bets (correctly) tend to be rewarded, though that may be purely by luck. We argue that this is a temporary situation – it has happened in the past and it will happen again. In fact, the narrowing of market breadth is a common part of the market cycle that has always reverted in the past to an environment where diversification prevails.

Question #1: Risk parity funds have largely underperformed a basic allocation of 60% stocks and 40% bonds over the last three- and five-year periods. Does this mean there's a flaw in the risk parity concept?

We think not. This simplistic comparison assumes that the only difference between a 60/40 allocation and a risk parity fund is that one is capital-allocated and the other is risk-

Past or simulated performance is no guarantee of future results. Potential for profit is accompanied by possibility of loss.

allocated. Of course this ignores the fact that the underlying investments in a 60/40 portfolio and a multi-asset risk parity fund are quite different too. Like most multi-asset funds, risk parity funds generally include small cap stocks, emerging markets investments, inflation-linked bonds, commodities and other assets to improve diversification. In order to fairly evaluate risk parity as a concept, you would have to remove the difference in the underlying assets. So if we are to compare risk parity to the concentrated 60/40 portfolio ("Basic 60/40"), proxied in our analysis by 60% MSCI World Index ("MSCI") and 40% Citi World Government Bond Index ("WGBI"), we should use a risk parity allocation to the same assets and no others. In this scenario, over the last 20 years, a basic risk parity allocation ("Basic Risk Parity") would be 45% MSCI and 160% WGBI. Table 01 below compares these two hypothetical portfolios for the three- and five-year periods ending October 31, 2015.

TABLE 01: BASIC 60/40 VS BASIC RISK PARITY[1] (PERIODS ENDING OCTOBER 2015)

Three Years	Basic 60/40	Basic Risk Parity
Return	10.24	11.45
Risk	8.71	6.38
Skew	0.13	-0.68
Kurtosis	2.27	0.03
MSCI R^2	88.95%	50.59%
Five Years		
Return	7.62	11.37
Risk	8.16	6.12
Skew	0.14	-0.57
Kurtosis	1.61	0.15
MSCI R^2	88.30%	31.47%

[1]**Based on hypothetical portfolio returns.**
Source: First Quadrant, L.P.

Table 01 shows that Basic Risk Parity has actually outperformed Basic 60/40 for the last three and five years and has done so at lower risk (meaning volatility), lower tail risk (kurtosis), and a lower correlation to equities. So based on this analysis, the fundamentals behind risk parity have not failed over the last three and five years contrary to the implications in the media, though risk parity and other multi-asset funds have underperformed Basic 60/40.

Question #2: So what's all the media noise about? What's the real reason risk parity funds have underperformed?

Most people think of a typical Basic 60/40 as a diversified portfolio. But as has been pointed out repeatedly in the risk parity literature, over 90% of a typical Basic 60/40 has its risk is in equities, and in particular the MSCI. Virtually all multi-asset funds, including risk parity funds, further diversify their equity allocation with other sectors of the equity market such as emerging markets, small cap and property. In the last five years, many of these sub-sectors have underperformed the MSCI, so diversifying the portfolio into other equity sectors degraded performance.

Basic 60/40, in principle, is actually a concentrated portfolio since most of its risk is in the large cap, developed market equities which make up the MSCI. In fact, simply moving the equity component of Basic 60/40 to the MSCI All Country World Index ("ACWI") changes performance significantly because of the inclusion of emerging markets as shown in Table 02.

TABLE 02: TRADITIONAL DIVERSIFIED BALANCED[1] (PERIODS ENDING OCTOBER 2015)

Three Years	Basic 60/40	Basic 60/40 w/ACWI	Diversified Balanced
Return	10.24	7.47	4.64
Risk	8.71	6.58	6.45
Skew	0.13	-0.20	-0.37
Kurtosis	2.27	0.03	-0.34
MSCI R^2	88.95%	89.53%	79.95%
Five Years			
Return	7.62	6.68	4.61
Risk	8.16	7.74	7.71
Skew	0.14	-0.22	-0.07
Kurtosis	1.61	0.23	1.32
MSCI R^2	88.30%	89.66%	84.85%

[1]**Based on hypothetical portfolio returns.**
Source: First Quadrant, L.P.

Column 2 shows that simply changing to a more diversified equity benchmark in our Basic 60/40 allocation reduces performance by 286 basis points a year for the last three years and 106 basis points per year for the last five years. Column 3 illustrates an even more "Diversified Balanced" portfolio that includes small cap, REITs, inflation-linked bonds and commodities in addition to emerging markets, allocated 55% stocks, 35% bonds and 10% commodities. This hypothetical portfolio has 3.93% active risk with the 60/40 over the last 25 years. We can see that performance deteriorates even further.

Question #3: So what does this mean for risk parity funds?

The effect is much the same as we can see in Table 03.

TABLE 03: DIVERSIFYING BASIC RISK PARITY[1] (PERIODS ENDING OCTOBER 2015)

Three Years	Basic Risk Parity	Diversified Risk Parity
Return	11.45	2.63
Risk	6.38	10.09
Skew	-0.68	-0.80
Kurtosis	0.03	0.64
MSCI R^2	50.59%	16.52%
Five Years		
Return	11.37	5.95
Risk	6.12	10.03
Skew	-0.57	-0.58
Kurtosis	0.15	0.45
MSCI R^2	31.47%	26.53%

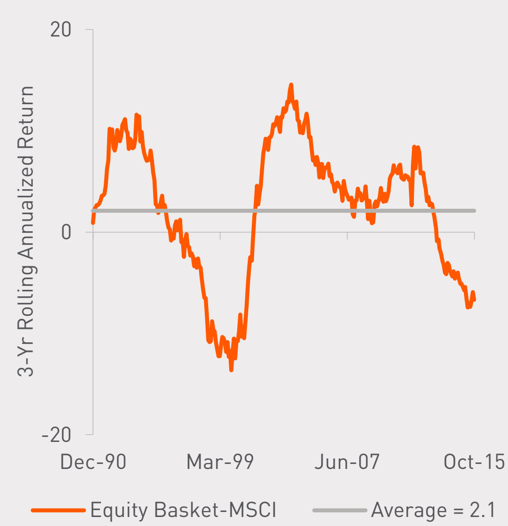
[1]**Based on hypothetical portfolio returns.**
Source: First Quadrant, L.P.

Column 1 has the same Basic Risk Parity hypothetical portfolio from Table 01. Column 2 has a "Diversified Risk Parity" hypothetical portfolio which includes the same sub-asset classes as "Diversified Balanced" in Table 02, but uses risk parity allocation principles, including risk-balanced allocations within the asset classes (for instance, risk-balanced commodities rather than the energy-heavy Bloomberg Commodity Index). Diversified Risk Parity has 5.80% active risk with Basic Risk Parity over the last 25 years. We believe that Diversified Risk Parity is representative of risk parity funds as a group. We can see that Diversified Risk Parity underperforms Basic Risk Parity in the same manner as the more concentrated hypothetical portfolios shown in Table 02.

Question #4: Has this happened before?

Yes. A narrowing of breadth typically happens at the end of the expansionary part of the market cycle. Exhibit 02 shows the difference in three-year annualized returns between the MSCI and the risk-balanced equity portfolio in our Diversified Risk Parity illustration. We can see that the three-year return dips below its long-term average at the later stages of both the Tech Bubble and the Global Financial Crisis. A similar pattern has also emerged recently, which we believe does not portend well for concentrated allocations going forward.

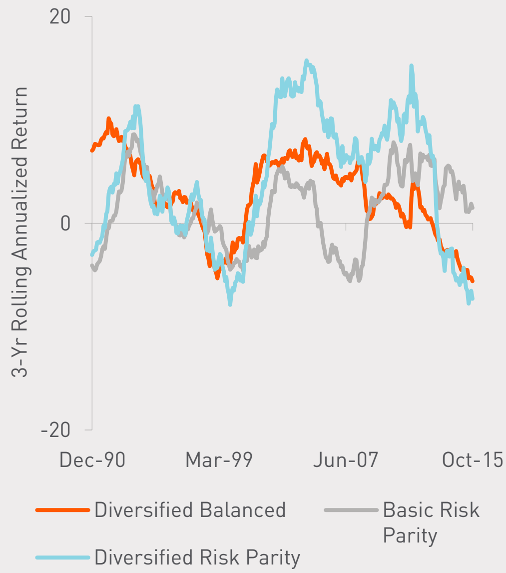
EXHIBIT 02 - RISK-BALANCED EQUITY WEIGHTED BASKET - MSCI[1] (3-YEAR ROLLING RETURN: JANUARY 1988 - OCTOBER 2015)



[1]**Based on hypothetical portfolio returns.**
Source: First Quadrant, L.P.

Exhibit 03 shows the hypothetical performance of Basic Risk Parity, Diversified Balanced, and Diversified Risk Parity vs. Basic 60/40, again using a rolling three-year return.

EXHIBIT 03 - EXCESS TO BASIC 60/40[1]
(3-YEAR ROLLING RETURN: JANUARY 1988 - OCTOBER 2015)



[1]**Based on hypothetical portfolio returns.**
Sources: First Quadrant, L.P.

In this comparison, we can clearly see that Basic Risk Parity has held up well while Diversified Balanced and Diversified Risk Parity both begin underperforming Basic 60/40 at roughly the same time in the recent past, as well as before the bursting of the Tech Bubble. Interestingly, the Global Financial Crisis was different. Diversification helped both diversified portfolios, but Basic Risk Parity underperformed. The result of this analysis suggests that Basic Risk Parity underperforms Basic 60/40 when the MSCI outperforms the levered WGBI, but the diversified portfolios may underperform when the equity sub-sectors underperform the MSCI.

Question #5: So why invest in a risk parity fund?
The same reasons that risk parity or risk allocation funds were attractive to begin with. The goal of a risk parity strategy is to offer a diversified portfolio that has a low correlation to equities, low tail risk, and an "equity-like" return over the long run. Based on the results of our analysis, we believe that these statistical characteristics still hold. The return has been problematic because diversification has underperformed. In fact, we can make the case that the more diversified a portfolio has been away from using the MSCI and WGBI as its underlying investments, the worse performance would be. So moving away from a risk parity portfolio because of recent performance is really a bet that diversification will continue to be a drag on performance. If an investor believes that diversification is an outdated concept, then stepping away from multi-asset investing would make sense. Otherwise, it would be more rational to expect the recent performance shortfall to end, as it has in the past.

Question #6: What lies ahead?
Diversification is one of the bedrocks of investing. In this paper, we did not take any "active" positions based upon views or even semi-active positions based upon scenarios. We merely compared passive, buy-and-hold hypothetical portfolios rebalanced monthly. One set (Basic 60/40 and Basic Risk Parity) were a passive weighting of two indices, the MSCI and the WGBI. Contrary to conventional wisdom, Basic Risk Parity has outperformed Basic 60/40 for the last three and five years. The other two passive portfolios (Diversified Balanced and Diversified Risk Parity) had subsectors of stocks and bonds in addition to commodities allocated in a way that is representative of not only multi-asset funds but many institutional plans. Basically, in the last five years, diversification has not been rewarded. With perfect foresight, we should have all bought the 60/40 or Basic Risk parity and gone home. But can we expect this to persist in the future?

Exhibit 03 says, no. What we see in Exhibit 03 is the ubiquitous "reversion to the mean." In addition, the past shows us that leadership over the market cycle changes. In hindsight, we believe a portfolio concentrated in the best performers

EXHIBIT 04 - PERIODIC TABLE OF RETURNS[1]
(JUNE 1990 - OCTOBER 2015)

RANKED IN ORDER OF PERFORMANCE Excess Returns	Gulf War Jun 90 - Jun 93	Recovery Jul 93 - Aug 97	EM Currency Crisis and Tech Bubble Sep 97 - Mar 03	Recovery Apr 03 - Dec 07	Credit Crisis Jan 08 - Jan 12	Recovery Feb 12 - Oct 15
BEST %	19.78	12.23	10.75	23.01	16.60	25.01
	16.65	9.27	6.74	14.09	14.54	13.45
	11.78	9.18	3.75	12.75	12.78	12.39
	9.20	8.85	-0.73	11.42	4.04	9.42
	8.59	6.24	-1.88	10.35	2.03	9.38
	5.18	5.88	-3.61	8.41	-0.59	3.18
	-2.52	3.60	-5.79	6.73	-4.00	-1.00
WORST %	-4.82	-3.28	-6.64	-0.70	-4.56	-9.45

Global Equities · Small Cap Equities · Emerging Markets · Real Estate · Commodities · Credit · Sovereign Bonds · TIPS

[1]**Based on hypothetical portfolio returns.**
Sources: First Quadrant, L.P., Datastream, StyleAdvisor, Global Financial Data (GFD)

DEFINITIONS: Global Equities is MSCI World Index (local currency), Small Cap Equities is Russell 2000 Index, Emerging Markets is MSCI Emerging Markets Equity Index, Real Estate is FTSE Nareit All REIT Index, Commodities is Bloomberg Commodity Index (Total Return), Credit is BofA ML High Yield Master Index, Sovereign Bonds is Citigroup World Government Bond Index (local currency), TIPS is BofA ML US Inflation-Linked Treasury Total Return Index from March 1997 to present and the hypothetical return of TIPS through the combination of ten-year interest rates and the 12-month trailing CPI prior to March 1997.

will always outperform. Exhibit 04 is a "periodic table" of index returns which we use as proxies for assets found within a typical risk parity portfolio. However, unlike typical tables, we have made two changes. First, rather than annual numbers we show annualized performance for periods of expansion and contraction in the global economy. Second, we have normalized performance so all the assets have 15% annualized risk.

It's not surprising to see that in the recovery phases of the business cycle, growth assets tend to be the best performer. However, prior to 2012, developed market equities tended to lag the more growth-oriented sectors of the global economy. By contrast, returns in the recent recovery are dominated by developed market equities and developed market bonds. This is an unusual combination and again illustrates why investing away from a typical basic 60/40 or basic risk parity has underperformed. We can only expect this to persist if we believe that diversification will no longer be rewarded and investing in a concentrated portfolio using the recent best performers is the way to go.

At First Quadrant, we do not believe that diversification is an outdated concept, but one that is rewarded over the long run. Each market cycle has a time when leadership narrows. Usually, that is at the end of the cycle; but that is the subject of a future paper.

Disclosures and Index Definitions

[1]Model, backtested or simulated performance presented in this paper are for illustrative purposes and are not a representation of strategies currently managed by First Quadrant, L.P. and are provided solely for conceptual discussion only; therefore no fees are discussed or illustrated within this paper. Results from any live implementation of strategies discussed would in actuality be reduced by fees charged against an account deploying the strategy. Model, backtested, or simulated performance is no guarantee of the future results in a live portfolio using the strategy. Potential for profit is accompanied by possibility of loss. Hypothetical or simulated performance results have certain inherent limitations. Unlike an actual performance record, simulated results do not represent actual trading. Simulated trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. Further, backtesting allows the security selection methodology to be adjusted until past returns are maximized. No representation is being made that any account will or is likely to achieve profits or losses similar to those shown. Unless otherwise noted, performance returns for one year or longer are annualized. Performance returns for periods of less than one year are for the period reported. Reinvestment of earnings was assumed. The simulated performance used in this presentation may differ from live performance experienced using the same strategies for a variety of reasons such as: The simulation assumes that the strategy guidelines are constant through the life of the portfolio, whereas, the guidelines for live portfolios may change over the life of each portfolio; the simulation assumes monthly rebalancing with zero transaction cost whereas rebalancing frequency may not be on a monthly basis and transaction costs will be variable; dependent on market conditions such as liquidity and portfolio size, the types of instruments traded within the simulation may not have been permissible in a live portfolio; etc.

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