Cliff's Perspective

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Putting Parity Performance Into Perspective

December 03, 2015

I've written before about the somewhat unhinged attacks on risk parity for having caused the market's August sell-off. Frankly, if the goal were to attack risk parity, the critics made a silly choice to go all tin-foil-hat instead of just doing what people usually do — attack recent performance. They'd have to attack relative performance (versus, say, the most common benchmark of 60/40 U.S. equities/bonds) because absolute performance hasn't been as big of an issue. But that shouldn't slow down a dedicated critic. So, this note addresses what earthbound critics would normally be saying, and more generally examines what undeniably has been a tough relative performance period for risk parity (while being a pretty good period for many of our systematic strategies, like quantitative stock selection and broad-based style investing, during a period generally regarded as difficult for alternative investing in particular).

Let's first review a few basics about risk parity:

- It's an alternative long-term strategic asset allocation that's typically used to diversify a more traditional equity-dominated allocation.
- We think it offers a real but modest long-term edge over traditional approaches. We believe this occurs mostly because many investors are too averse to applying leverage, even to a modest degree, to the "best" portfolio as basic theory would suggest. Rather, investors who need to take a fair amount of risk tend to concentrate it in the riskiest assets, mostly equities. This leads to investors generally undervaluing diversifying assets that improve risk adjusted returns (but perhaps not total returns without some leverage) and overvaluing assets that provide aggressive returns without financial leverage.[1]
- Better diversification and a modestly higher Sharpe ratio does not always win! Risk parity is often described as better diversified across economic environments, succeeding in rain or sleet or shine. We believe these statements are true on average but, of course, not all the time, and taken alone tend to overstate the case. In particular, regardless of environment, when equities, the asset class that dominates traditional portfolios, outperform other asset classes by a lot, risk parity will very likely lose to them and asset allocations dominated by them (if equities outperform by less, the edge risk parity gains from superior diversification may still be able to make up the difference). Furthermore, again, risk parity's edge is important but modest. A modest edge adds up over the long-term but should not be oversold.

Back to recent performance. For several years now, we have used the long-term returns on something we call "Simple Risk Parity" to conduct our investigations. Actual implemented risk parity, at our or any firm, can't be fully tested over very long periods because returns of many assets within a risk parity portfolio today (e.g., stocks and bonds of many countries, certain commodities, inflation-linked bonds in the U.S.) aren't available for the length of time we wish to analyze. We describe our approach to Simple Risk Parity in other places but, essentially, it is equal-risk-weighted (using a relatively simple model of conditional risk) across the best proxies we have historically for global stocks, bonds and commodities. Despite some design differences, the total return on this simple backtest has been highly correlated to the live performance of our real-life risk-parity portfolios. Furthermore, the total live returns we've experienced (since we launched it in 2006) have been comparable to this backtest over this same period (this despite the Simple Risk Parity backtest being gross of trading costs).[2] Basically, while not perfect, we think it's a pretty reasonable proxy for how real-life risk parity behaves, and one that we can examine back to 1947.

So let's examine absolute performance (the performance of risk parity itself, not risk parity versus anything else, save cash). The graph below shows the summed monthly cumulative excess return (risk parity excess over cash) from the start in 1947 through November of 2015:

Cumulative Excess Return to Simple Risk Parity
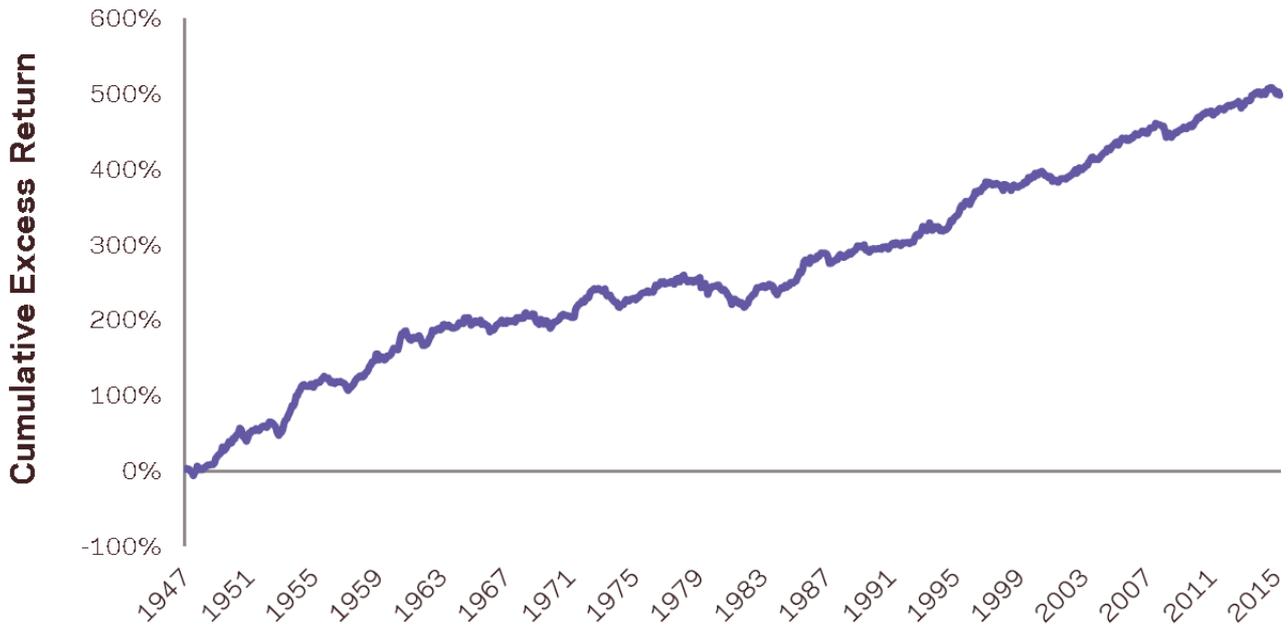
Source: AQR; the simulated Simple Risk Parity strategy is based on a hypothetical portfolio described in greater detail at the conclusion of this document. Please read important disclosures at the conclusion of this document.

Nothing too weird or unpleasant seems to be going on lately.[3] In fact, the graph is good for some perspective. Risk parity had an unpleasant drop back in the spring of 2013 that made media headlines. Can you see it in the graph? You can but you have to squint. Risk parity certainly fell in the global financial crisis (we think it's a better strategic allocation but it's still long markets) and that's clearly visible, but it doesn't look that bad does it? Drawdowns in real life always seem to feel longer and induce more pain than you'd imagine when looking back. This is true for risk parity and all of investing, and is a big part of why investing is harder than it looks!

But, remember, the knock on risk parity lately (not the tin-foil-hat knock about causing market drops!) is about relative performance versus 60/40, not about absolute performance. In this, the critics are not mistaken. We certainly do see some real recent pain. Below I graph the cumulative difference in return between Simple Risk Parity and U.S. 60/40:

Cumulative Simple Risk Parity vs. U.S. 60/40

Source: AQR; the simulated Simple Risk Parity strategy is based on a hypothetical portfolio described in greater detail at the conclusion of this document. The U.S. 60/40 portfolio consists of a 60% allocation to the S&P 500 index and a 40% allocation to U.S. 10-year Treasuries, rebalanced monthly. Please read important disclosures at the conclusion of this document.

The source of the long-term positive performance (that is, why the line generally moves up!) is better diversification, in particular making assets like bonds and commodities count as much, but not more than, equities. The source of the recent pain is largely three-fold:

1. Risk parity is a diversification away from equity dominance. That's the whole idea. Risk parity's relative performance peaked back when the stock market cratered in 2009, and has since suffered due to the long and strong equity bull market.

2. More recently, returns have suffered from the very sharp downturn in commodities, which are not in the 60/40 portfolio at all.

3. Since 2009, U.S. stock market performance has been superior to the global equity portfolio implemented by risk-parity approaches.

We can all debate how predictable the above three were and whether a deft timer could've avoided or profited from them. In addition to offering steady strategic allocations to risk parity, we ourselves offer risk parity portfolios that are more tactical, that tilt a bit away from risk parity, in any direction, as our signals dictate. But that debate, while very interesting and important, is a non-starter for us when it comes to the basic idea of risk parity. To us, as we've always emphasized, basic risk parity is a different strategic allocation. Investors can still choose to be as active as they want on all decisions — including the three implied above (making forecasts for equities vs. other asset classes, commodities, or the U.S. versus other countries) — whether they believe the proper starting point is, say, traditional 60/40 or risk parity. But the basic risk parity debate is about this starting point. We consider, and have always considered, the issue of tactical predictability and potential value-added a separate issue from the long-term strategic comparison of risk parity versus more traditional allocations.

On this latter question, we don't see much to worry us in the prior graph. That is not to say the recent relative performance hasn't hurt: it clearly has. This has been a long and painful relative period for risk parity. But it has not been one that's historically unprecedented or even unusual. It looks like a painful but relatively normal occasional outcome if we're implementing the process we think we are. We do try to be consistent about these things. For instance, it's been a relatively strong last few years for quantitative stock selection. We don't look at this result and forecast that it will be better going forward than we previously thought, nor do we forecast sharp short-term mean reversion.[4]

Viewed another way, we graph the relative returns of Simple Risk Parity versus 60/40 on a rolling 3- and 10-year basis:
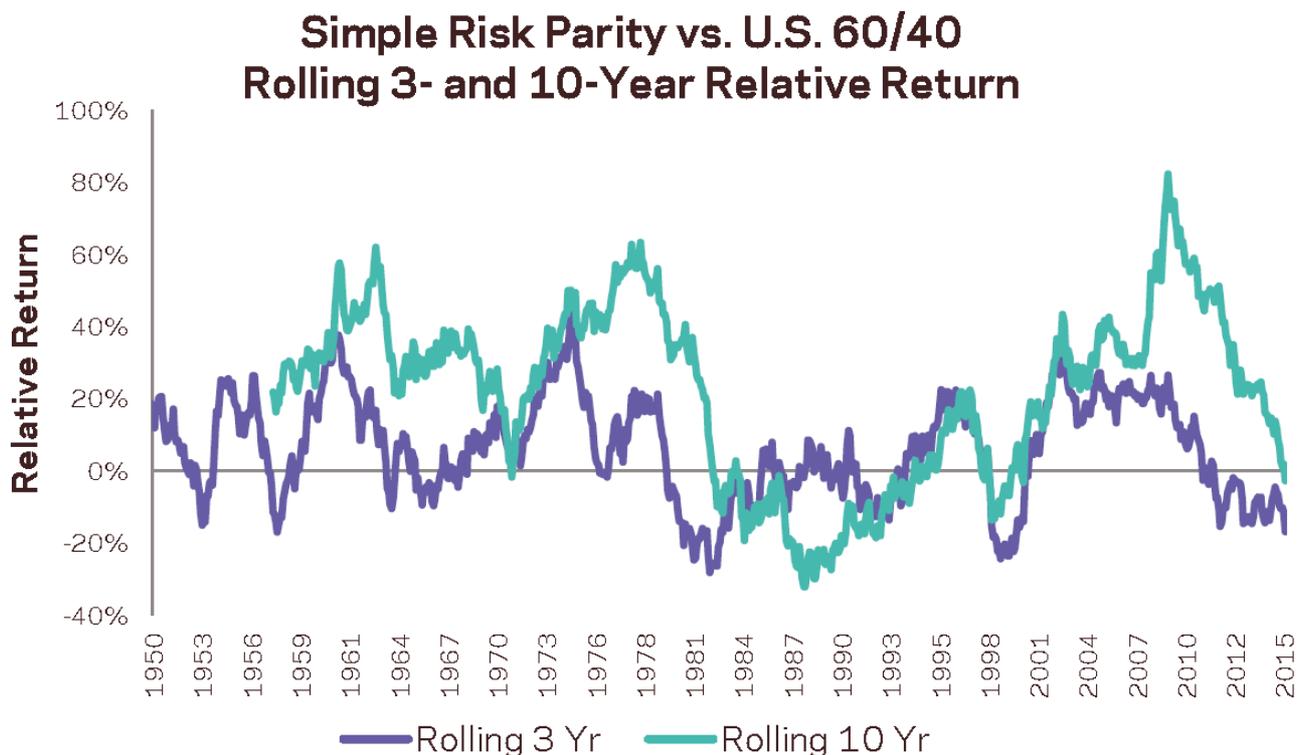
Simple Risk Parity vs. U.S. 60/40
Rolling 3- and 10-Year Relative Return

Source: AQR; the simulated Simple Risk Parity strategy is based on a hypothetical portfolio described in greater detail at the conclusion of this document. The U.S. 60/40 portfolio consists of a 60% allocation to the S&P 500 index and a 40% allocation to U.S. 10-year Treasuries, rebalanced monthly. Please read important disclosures at the conclusion of this document.

While, again, recent times have been difficult versus history and versus the zero line, they are well within the bounds of historical experience.[5]

In fact, an interesting question, perhaps for another day, is what you do if graphs like I've shown were to show recent results outside historical norms? Even then, it is less obvious to me what to do than some might think. Perhaps there are others but I can think of

three reasons you might see results worse than any observed in long-term historical experience. One, the process was never any good or, at least, much worse than you thought (e.g., it was overstated from data mining) and the past looks too rosy. Two, while it used to work, the "world has changed" so the process is no longer any good, and thus more-extreme poor results are now possible. Three, and this is perhaps the biggest cop-out, but some time period has to be the worst ever, even if the process is as good as you think, and it's possible that we happen to be living through it now, as opposed to seeing it happen in the distant past. Experiencing the worst period historically for a strategy may actually bode well for the process if it's been hurt by crazy trends that are likely to reverse (think about measuring the historical returns to value investing, which got quite low near the peak of the 1999–2000 tech bubble — if you abandoned it because results were outside historical experience you got it exactly backwards). Sorry I don't have any easy answers. But, I do know that this isn't the question that I have to address as of now! The question of what to do when you see results well outside the norm of historical experience is difficult, without an obvious answer. The question of whether to react strongly to results you absolutely expect to see on occasion is an easier one.

We've written before about the difficulties of sticking with a process through tough times and how long abnormal periods of tough performance can feel. We don't dismiss the pain that risk parity investors, particularly those most tightly benchmarking themselves to traditional portfolios, are feeling. We feel it ourselves. But we've also written about the dangers of overreacting to what are, despite how they sometimes feel, still relatively short-term periods (e.g., peeve #3). While we certainly wish recent times were better for strategic risk parity, we don't see any evidence that would change our long-term view. In fact, I have the temerity to ask, if results like those graphed above do change your opinion, why? It's certainly expected that there would be different opinions on long-term risk parity and that some might have a strong short-term tactical outlook they'd want to employ. But we don't think one's opinion on the long-term strategic case should change based on results in line with what we expect to see on occasion.

This of course applies to all investing. What is really still the short-term can feel very long-term — particularly, of course, when losing (we sometimes jokingly call this "time dilation"). Even very good investment processes that, when looking at historical results and considering the problem without suffering the tough periods yourself, seem easy to stick with can in fact be very difficult to hold through their valleys. Deciding what is reasonable, allocating to it, then sticking with it unless we have a far better reason to deviate than "we just realized painful results that we, unfortunately, expect to see from time to time" is one of the hardest but most important parts of our jobs.

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[1] Some argue that risk parity is better simply because it's more diversified and can win in more environments. Not true. If better diversification were more costly, say because equities offered a far larger return premium to other assets than they have historically, risk parity would not be a superior allocation. You can't just argue that you want a more diversified portfolio or one that wins in more environments — you have to argue why the market offers you such a portfolio at a better Sharpe ratio (or some other measure of risk-adjusted return) than more traditional allocations. See Asness, Frazzini and Pedersen (2012) for more details.

[2] Source: AQR. Past performance is not a guarantee of future performance.

[3] Simple Risk Parity did somewhat better than real life risk parity over the last few years and somewhat worse in the few years before adding up to a 2006-2015 "push." This is the kind of thing you see with these high but still imperfect correlations such as between the simple and live portfolios. Substituting live returns for Simple Risk Parity over only the 2006-2015 period when they are both available leads to essentially the same message we're conveying here.
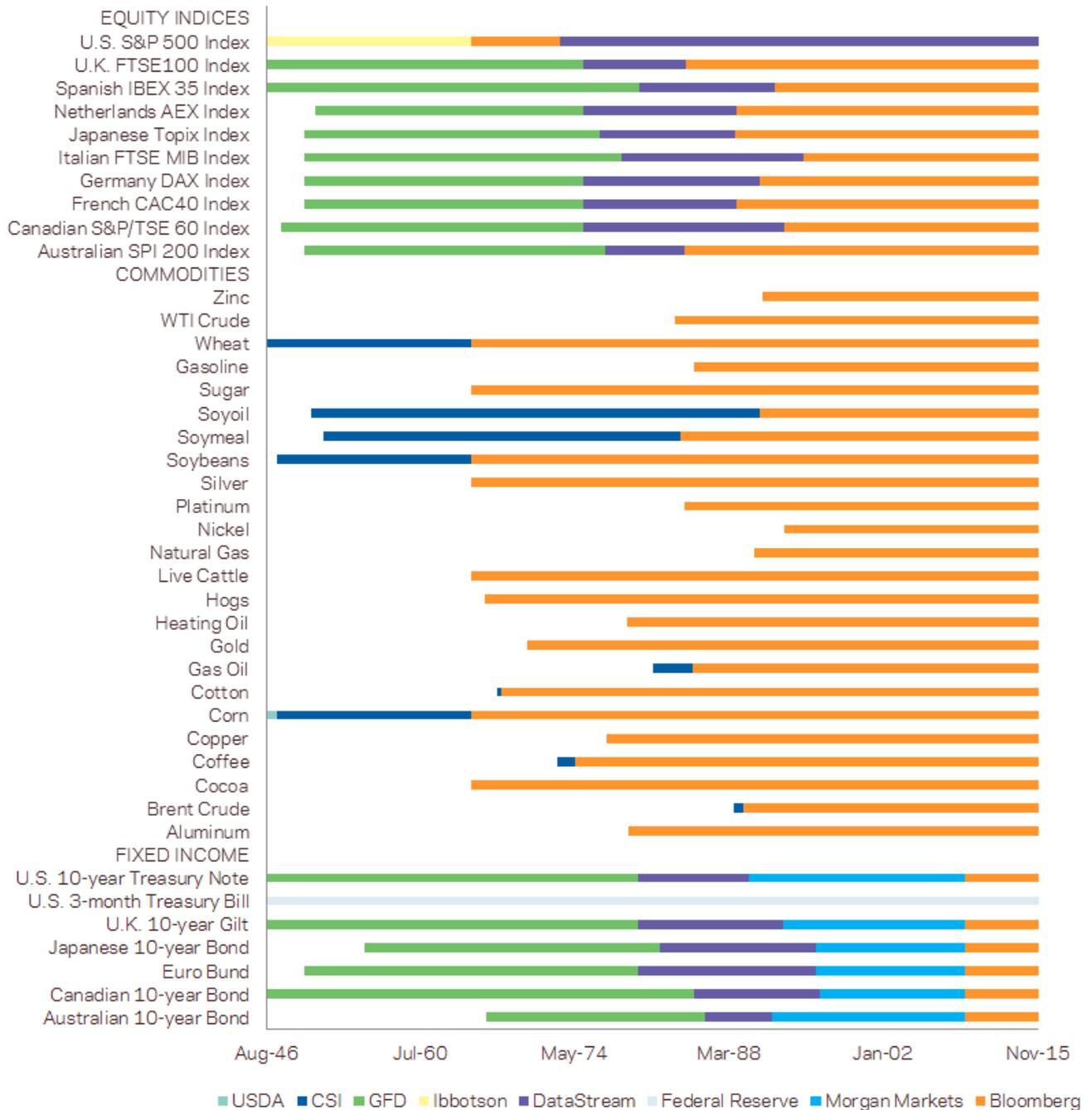
[4] There are times, like for disciplined value strategies near the peak of the 1999-2000 technology bubble, when performance is so extreme that we might forecast near-term (next 1-3 year) mean reversion but those times are rare and the exception.

[5] This may be gilding the lily but in prior work we test versions of risk parity that were not as good as our Simple Risk Parity construct simply by discounting (reducing) those backtested returns. This prior work generally finds a role for risk parity even if a substantial discount is applied (that is, if results are not as good as the basic Simple Risk Parity backtests). This type of thinking — what if the backtest overstates results — subtly affects the analysis here. If the past is good, and good enough to include risk parity in a portfolio, but we're really not as good as our backtest, then live returns have less of a hurdle when comparing to historical experience. That is, if a backtest is overstated then recent results, even the results of a consistent backtest that came after the creation of the process itself, would actually be expected to show bigger occasional downs than in a long-term undiscounted backtest before the process's creation. OK, enough lily gilding, it's a reasonable point but not needed here.

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Data source chart showing data providers by time period for Equity Indices, Commodities, and Fixed Income instruments.

Legend: ■ USDA ■ CSI ■ GFD ■ Ibbotson ■ DataStream ■ Federal Reserve ■ Morgan Markets ■ Bloomberg

X-axis: Aug-46, Jul-60, May-74, Mar-88, Jan-02, Nov-15

EQUITY INDICES
- U.S. S&P 500 Index
- U.K. FTSE100 Index
- Spanish IBEX 35 Index
- Netherlands AEX Index
- Japanese Topix Index
- Italian FTSE MIB Index
- Germany DAX Index
- French CAC40 Index
- Canadian S&P/TSE 60 Index
- Australian SPI 200 Index

COMMODITIES
- Zinc
- WTI Crude
- Wheat
- Gasoline
- Sugar
- Soyoil
- Soymeal
- Soybeans
- Silver
- Platinum
- Nickel
- Natural Gas
- Live Cattle
- Hogs
- Heating Oil
- Gold
- Gas Oil
- Cotton
- Corn
- Copper
- Coffee
- Cocoa
- Brent Crude
- Aluminum

FIXED INCOME
- U.S. 10-year Treasury Note
- U.S. 3-month Treasury Bill
- U.K. 10-year Gilt
- Japanese 10-year Bond
- Euro Bund
- Canadian 10-year Bond
- Australian 10-year Bond