

Recently there have been a number of criticisms of balanced risk, or risk parity strategies. At First Quadrant we spend a good deal of time researching the “spanners” that can get into the works to disrupt our strategies. Our risk parity strategy, “Essential Beta”, has already gone through such an analysis. As such, we believe we can address the issues which have been raised.

A risk parity strategy balances risk across asset classes rather than balancing capital. As another way of performing long-term, strategic asset allocation, it is a “beta” strategy. Risk parity adds a third dimension to traditional asset allocation which balances expected return vs. risk through a mean-variance optimizer. Traditional asset allocation has two basic constraints: (1) a short constraint, meaning that short positions are not allowed, and (2) a long constraint meaning that all of the capital allocations have to add up to 100% so that no leverage is allowed. Risk parity portfolios keep the short constraint, but relax the long constraint. When one does so, a portfolio which balances the risk between stocks and bonds by leveraging bonds naturally falls out because bonds (particularly sovereign bonds) have a better Sharpe ratio than stocks. So a risk parity portfolio is merely a more efficient “strategic” portfolio in that it uses all of the same risk/return assumptions used to create a traditional asset allocation portfolio while relaxing the “long constraint” to allow leverage.

Note that this does not mean the risk parity balances risk among all the asset classes, as it has often been simplistically described. FQ has long resisted using the term “risk parity” to describe the strategy for this reason and preferred “risk balancing”. But “risk parity” has become the generic term and we use it now.

So, what are the dangers in a risk parity portfolio? There are two categories of objections. The first deals with methodological issues and comes from a misunderstanding of how risk parity is implemented. The second deals with timing, i.e. is NOW the right time to start a risk par-

ity program. This criticism seems to confuse Tactical Asset Allocation (TAA) which is an alpha strategy with risk parity which is a beta strategy. We would like to address both of these categories.

## Methodological Issues

Rather than rebutting already published work in detail, we would like to address the methodological issues by outlining what we believe to be the proper way of implementing risk parity. Most of these objections center on the problems with leveraging investments. It is true that leverage has risks, but we have mitigated those risks by limiting “leverage” through exchange traded futures where counter-party and liquidity risks are minimized. The issues to be concerned with are as follows:

**First**, leveraging bonds is a typical outcome of a risk parity optimization. However, leveraging bonds introduces a significant inflation risk into the portfolio. Because of this an inflation hedging component is necessary, such as commodities and inflation protected bonds, such as TIPS. In addition, periods of hyper-inflation cause bond volatility to increase dramatically. So if such a period approaches, the volatility assumption for bonds needs to be raised which reduces the need to leverage bonds when they are most vulnerable.

**Second**, not all assets should be leveraged even if they are low risk assets. Corporate bonds, for instance, have undesirable characteristics when leveraged particularly tied to counter-party risk and liquidity constraints during market declines. The solution is not to leverage them. In fact, we have a rule that any asset that already has internal leverage (like stocks and corporate bonds) should not be leveraged again externally. Stocks, for instance, have an average debt-to-equity ratio of 2:1 so they are already leveraged. Instead sovereign bonds which can be easily leveraged in the futures markets where there are no counter-party risks or liquidity issues in time



of crisis are the way to go. Leverage, in fact, merely puts sovereign bonds on an equal footing with stocks and corporate bonds whose higher risk and total return profiles are a result of “internal” leverage as opposed to the “external” leverage of sovereign bonds we can achieve in the futures markets.

**Third**, commodities are not expected to produce a positive excess return over the long run. They hedge the portfolio against inflation risk. So a full risk parity allocation to commodities is not desirable.

In the end, the only asset class that should be leveraged is exchanged-traded sovereign bond futures because they offer the most consistent diversification for stocks in periods of economic decline due to their “flight-to-quality” characteristics. Credit exposure, etc do not offer significant diversification against stock market declines.

In addition, we can reclassify the leveraged sovereign bonds as synthetic long-duration zero coupon bonds. In fact, if we were to replace intermediate sovereign bonds with 20 year duration zero coupon bonds in the optimization described above, no leverage would be necessary. Unfortunately, zeros are only available in the US and they are in short supply, so the only alternative is to create a portfolio of global zero coupon bonds synthetically in the futures market. This form of leverage does not have the counter party and liquidity risks that most equate with “leverage.”

#### 1941 - 1981

It has been pointed out that there have been periods where sovereign bonds do not offer a positive risk premium or expected excess return to cash. One critique focused on the years from 1941 – 1981. This article said that 10 year US treasuries had a “negative real return” for over the 40 years and that leveraging treasuries during that period would have been a “disaster.” There are many problems with this analysis. The first is the time period that was chosen. Economists typically avoid the 1940s which include World War II and the immediate after years because during WWII we had a controlled economy. The government imposed price controls which artificially held prices down even as materials were in short supply since production was geared to the war effort. Consumer and producer prices exploded after the war when controls were released in 1946. Typically the 1940s are avoided when talking about “real returns” unless one is studying a war-time economy. So including the 1940s has a “data mining” element in that including that period proves the writer’s point though the data itself is of questionable value.

Second, the article implies that leveraging a “negative *real* return” would have produced an even larger negative *total* return, but this is not true and comes from a simple arithmetic

error. The “real return” is (Nominal Total Return) – Inflation. Of course you can only subtract inflation once but you can increase the nominal total return through leverage. The nominal total return of bonds during that period was positive, so leveraging the *total* return would have produced a positive *real* return not a bigger negative one. Finally, the negative real return occurred because of two bouts of hyper-inflation. The first occurred during the post-war period when price controls were released and the second from 1979 – 1981. Currently we have both TIPS and commodities to hedge against such events. These hedging tools are not mentioned in the criticism. In addition, if we analyze the 1950 – 2009 period then there is a positive real return of +2.19% per year even though the 10 year T-Note yield rose from 1.90% to 3.85% over 60 years. T-Bills had a real return of +1.07%. So this is an even longer period where bond yields rose from an even lower yield than we have now, but still produced a positive risk premium as well as a positive real return. Which period is more valid?

Are there periods where risk parity underperforms traditional unleveraged asset allocation? Certainly, but over the long-term it is a more efficient beta portfolio and can be expected to outperform when properly constructed to take into account the different risks.

#### Benchmark Issues

Another risk parity criticism centers upon the apparent lack of a “benchmark.” While the industry has yet come to an agreement on this, there are many potential benchmarks to use. If the benchmark is an “investment alternative” then a traditional unleveraged stock bond mix with similar total risk to the risk parity portfolio is appropriate. Risk parity will have large active risk (or “tracking”) to this benchmark, so it would take about 3 years to fully judge performance. A better passive “tracking” benchmark would be a risk balanced combination of stock and bond indices as opposed to a capital allocation. This would need to be calculated by a third party, but is very doable. In the end, the benchmark is the expectations of the clients. Clearly we can define that or we should not be in the business of supplying investment services.

#### Product or Methodology?

Finally, there seems to be some confusion over risk parity as a product and as a methodology. If an institutional fund were to implement risk parity on a large scale, there would be many issues to consider. Large funds would have the resources for implementation, but achieving risk parity on a large scale would have significant, though achievable, challenges. Smaller funds could achieve risk parity but may not have the resources to manage implementation. There are many solutions to these issues which are outside of First



Quadrant's mandates. However, we can say that limited risk balancing as opposed to full risk parity would still benefit an institutional fund. Reducing the equity risk budget from over 90%, which is the average for most plans, to 80% would be beneficial. For smaller plans, making even a 10% commitment to various risk balanced products would also improve the risk profile of the fund. However, critics of risk parity have not necessarily kept the distinction between product and methodology clear.

## Is Now the Time?

### *TAA and Risk Parity*

The second broad criticism deals with the current economic situation. If you interpret the current environment as one where the bond risk premium is small and the equity risk premium is large, then leveraging bonds can be considered a poor investment choice. Here we enter into a blurry distinction between tactical and strategic asset allocation. One prominent critic of risk parity (who is also a significant player in TAA) says that a static asset allocation ignores current economic conditions so risk parity is not desirable at this particular point in history.

As long-time practitioners of TAA as well as a provider of risk parity, we can say that this criticism confuses two very different investment strategies. Risk parity replaces the static strategic target typically given to TAA managers as their passive beta exposure or benchmark. This beta exposure is designed so investors can participate in the growth of the global economy. TAA, on the other hand, is an alpha strategy designed to be uncorrelated with the market or the economy and add value to the strategic asset mix. Both FQ and others have shown that risk parity is a more efficient beta portfolio than a static capital mix such as the 60/40. As such, in a long Global TAA portfolio, risk parity would replace the 60/40 but can still be coupled with the tactical shifts associated with GTAA based upon shorter-term forecasts of the risk premia.

In addition, this criticism assumes that risk parity portfolios are "static" portfolios. While this can be true of some implementations of risk parity, it is not true of the FQ Essential Beta portfolio. As we have discussed elsewhere, the FQ approach is to keep a constant risk budget of 42.5% stocks, 42.5% bonds, and 15% commodities. However, the FQ model assumes that risk has cycles, so that a static capital allocation lets the risk budget float, while keeping the capital allocation constant. Essential Beta, on the other hand, keeps the risk budget constant while letting the capital allocation float. The result is a higher equity allocation and lower bond

allocation in periods of low volatility (such as 2003 – 2006) and the reverse during high volatility periods (such as 2007 – early 2010). These shifts are not "tactical" because they are based upon risk budgeting, not return forecasting, but they are not "static" either. As a result we consider Essential Beta a "dynamic strategic asset allocation" as opposed to the 60/40 which is a "static strategic asset allocation."

Also, we encourage potential investors to couple Essential Beta with a GTAA strategy so that it can take into account shorter-term forecasts and so combine the efficient beta exposure of Essential Beta with the true alpha of GTAA.

### *Hedging Liabilities*

Finally, this criticism ignores the fact that risk parity gives investors a portfolio that hedges liabilities due to its long duration bond exposure while participating in economic growth. At a time when many plans are underfunded is it riskier to "swing for the fences" and put all your eggs in the asset growth basket, or would it be more prudent to own a portfolio that offers both asset growth and liability hedging? It is not clear at this time in history (despite the popular press) that inflation is more likely than deflation. While we have seen massive liquidity pumping and government spending to avert a depression that does not mean that it is certain inflation will follow. In fact if we look at the history of Japan in the 1990s and the US in the 1930s inflation was not the result of the same type of policies we are currently seeing in the developed world. If funds are positioned for growth and the deflation scenario occurs because we experience a "double-dip" recession, then liabilities will soar even with bond yields at 3.5% - 4.0%. This is because the "real yield" of bonds is actually quite high and the yield curve itself is exceptionally steep by historical standards. A risk parity portfolio, such as Essential Beta, can hedge liabilities if they grow, while participating in growth, if it occurs.

## Summary

In the end, risk parity, like any investment strategy can be poorly implemented. Clearly leveraging any asset involving counter-parties increases the risk of the portfolio. Ignoring inflation risks can be devastating to a portfolio. In the near-term it can underperform other alternative investments. But in the end, risk parity is a simple concept that does much to improve the long-term risk/return characteristics of a strategic asset allocation portfolio while offering significant liability hedging properties. As such, it is a discipline which should be seriously considered by all investors.