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The Risk Parity Approach to Asset Allocation

The natural reaction to any crisis, once the imminent danger has subsided, is to look back, evaluate what went wrong and develop strategies to avoid or mitigate the impact of future crises with similar characteristics. The recent financial crisis is no exception. As the markets have begun to recover, practitioners and pundits alike have disgorged a seemingly endless litany of "next generation solutions" to everything that went wrong with the asset management industry. One of the more common refrains has been an attack on the Mean Variance framework which is central to the asset allocation process employed by most institutional investors. Critics argue that Mean Variance Optimization (MVO) resulted in under-diversified portfolios that failed to provide risk control when risk control was needed most.

Of the multitude of alternative asset allocation paradigms that are being proposed, a collection of approaches broadly referred to under the heading of "Risk Parity" seems to be gaining traction. For the most part they are currently being employed by asset management firms managing diversified global multi-asset class portfolios. Increasingly, however, it is being suggested that the framework could be applied at the policy portfolio level by large institutional investors.

This paper contrasts the Risk Parity methodology with the traditional Mean Variance approach in the context of developing policy portfolios for large institutional investors. After a brief description of the Risk Parity approach, policy portfolios are developed under both frameworks using a consistent set of capital market inputs. This allows for a direct comparison between the methodologies, unclouded by differences in the underlying assumptions. Both approaches are then evaluated in an historical context using data spanning the last 20 years. Finally, we discuss some of the practical considerations of implementing a Risk Parity approach—namely the use of leverage—at the policy level.

About Callan Associates

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About the Callan Investments Institute

The Callan Investments Institute, established in 1980, is a source of continuing education for those in the institutional investment community. The Institute conducts conferences and workshops and provides published research, surveys and newsletters. The Institute strives to present the most timely and relevant research and education available so our clients and our associates stay abreast of important trends in the investments industry.

Key Observations

1. The Risk Parity approach is still loosely defined but, in general, its stated objective is to produce portfolios where each asset class contributes equally to overall portfolio risk.
2. This concept seems to appeal to people's intuitive understanding of diversification, particularly after a period where equities—the primary driver of risk in most institutional portfolios—have experienced a series of sharp declines.
3. In the absence of leverage, the expected return of a Risk Parity portfolio employing standard asset classes is too low to be compelling for most institutional investors.
4. By combining leverage with a Risk Parity portfolio, an investor can theoretically achieve their required rate of return (typically between 8.0% and 8.5%) with a lower level of risk than can be achieved with an unlevered portfolio along the Efficient Frontier.[1]
5. In spite of its intuitive appeal, the Risk Parity portfolio is not the risk-minimizing portfolio. It lies below the Efficient Frontier, meaning that there are other portfolios on the Frontier which, when combined with leverage, can achieve the same expected return as the levered Risk Parity portfolio at an even lower level of risk.
6. In order to produce an expected return of 8.25%, a levered Risk Parity portfolio employing standard asset classes would require somewhere between 40% and 60% leverage, depending on the expected returns for the unlevered portfolio and the cost of borrowing.
7. The advantage of a levered approach declines precipitously as the cost of leverage increases relative to the return of the unlevered portfolio. In practice, the cost of leverage is likely to rise as the amount of leverage required increases, as well as during times of severe financial stress.
8. Due to its higher allocations to fixed income, the levered Risk Parity portfolio will be more sensitive to interest rate movements than an unlevered Efficient Frontier portfolio with the same expected return. This sensitivity is further exaggerated by the use of leverage.
9. Historically, a levered Risk Parity portfolio would have significantly underperformed the typical institutional portfolio during the 1990s and would have significantly outperformed during the last decade.
10. Over the entire 20-year period since 1990 a levered Risk Parity portfolio that delivered an 8.25% annual return would have done so with approximately half the volatility of an unlevered Efficient Frontier portfolio with the same return.
11. Given the underperformance in the 1990s and the practical difficulties of implementing a levered policy portfolio, it is unlikely that the levered Risk Parity approach would have survived at any major institution during that time in order to deliver on its promise of risk control during the downturns of the last decade.

1 The theoretical implications of combining leverage with a risk-minimizing multi-asset portfolio was originally explored in the work of Jack Treynor (1961, 1962), William Sharpe (1964), John Lintner (1965) and Jan Mossin (1966). It has largely been ignored in practice due to the practical difficulties of implementing leverage at the policy level for large institutions.

What is Risk Parity?

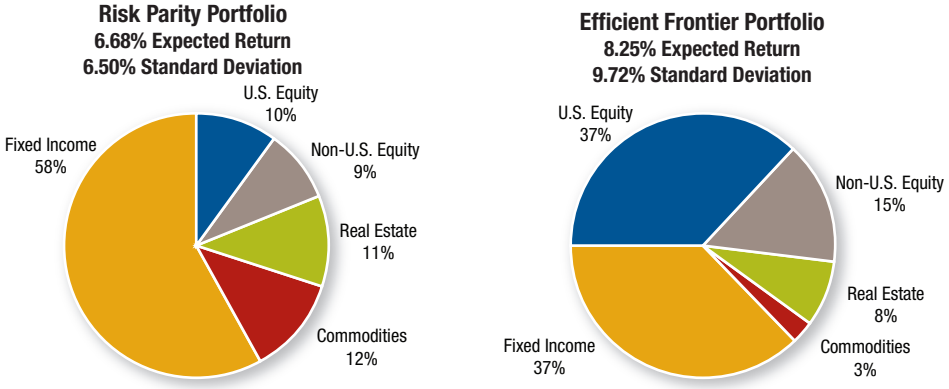
Risk Parity derives its name from its stated objective of creating a portfolio where each asset class contributes equally to the overall risk of the portfolio. By contrast, in the typical institutional portfolio, equities explain roughly 70% to 85% of total portfolio volatility over time. This is due to the fact that equities are relatively volatile and typically comprise over half of the total portfolio. Advocates of the Risk Parity approach argue that this equity-centric risk posture is underdiversified.

In the Risk Parity portfolio,[2] fixed income and other lower volatility asset classes comprise a greater percentage of the assets. This reduces the proportion of risk explained by equities, while also reducing the overall risk of the portfolio. Unfortunately, in the absence of leverage, this also reduces the portfolio's expected return well below the level required by most institutional investors.

Exhibit 1 (on the left) shows the composition of a Risk Parity portfolio that includes U.S. equity, non-U.S. equity, real estate, commodities and fixed income. The portfolio was developed using Callan's long-term assumptions for standard deviation and correlation for each asset class. Notably, the Risk Parity approach does not require assumptions for expected return to determine the allocation between asset classes. Return expectations are required, however, to determine the appropriate amount of leverage to achieve a given level of expected return. An efficient Mean Variance portfolio with an 8.25% expected return is shown on the right for comparison. This Mean Variance portfolio was developed using the same set of assumptions for standard deviation and correlation, combined with Callan's long-term expectations for return.

Exhibit 1 Portfolio Composition – Risk Parity versus Standard Efficient Frontier

Risk Parity portfolios are a less equity-centric traditional institutional approach compared with the Standard Efficient Frontier.

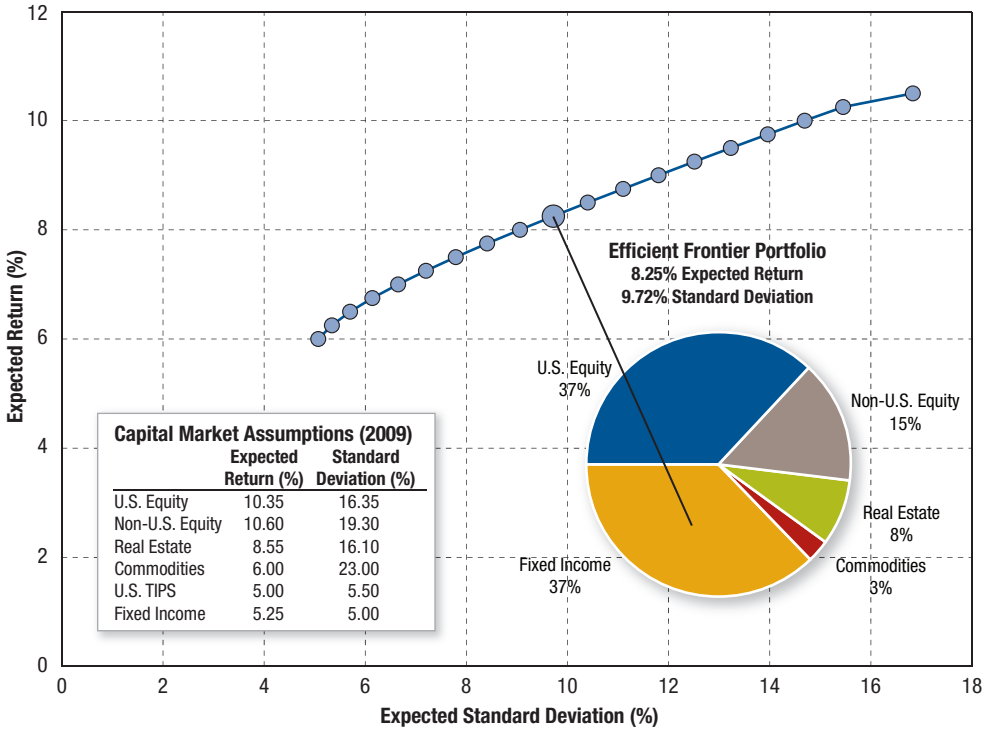


2 There is little consensus among practitioners on the precise methodology for determining the "optimal" Risk Parity portfolio. The most simplistic approaches ignore correlations between asset classes arguing that correlations are unstable and their use leads to increased estimation error. In this analysis we employ a methodology that uses standard deviation and correlation estimates to determine the contribution of each asset class to overall portfolio risk. We then solve for the unique portfolio where the replacement of any asset class in the portfolio with cash results in the same reduction of total portfolio risk. The methodology is inspired by an approach outlined by Edward Qian in his article, *On the Financial Interpretation of Risk Contribution: Risk Budgets Do Add Up*, published in the Journal of Investment Management, Vol. 4, No. 4, 2006.

Based on Callan's long-term assumptions, the unlevered Risk Parity portfolio has an expected return of 6.68%, roughly 150 basis points lower than what is required by the typical institutional investor. This is due to the fact that over half of the portfolio is made up of fixed income. The other higher volatility asset classes have roughly equal weights in the portfolio, with commodities having the greatest weight due to its low correlation with the other asset classes.

It is useful to employ the CAPM framework in order to understand how the use of leverage can bridge the 150 basis point gap between the two portfolios. In particular, the Capital Allocation Line (which is described below) lends itself nicely to illustrating the impact of leverage on any portfolio. The Capital Allocation Line allows you to compare the relative efficiency of various levered portfolios. It also allows for an easy comparison with unlevered portfolios along the Efficient Frontier.

Exhibit ❷ Efficient Frontier: Stocks, Bonds, Commodities and Real Estate



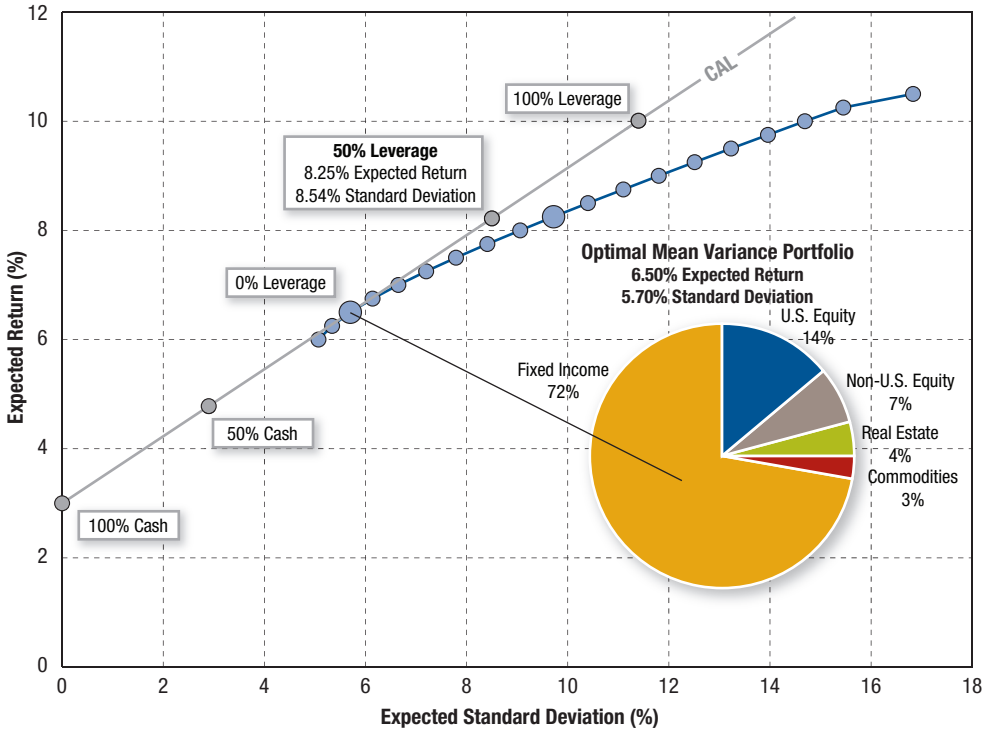
In the absence of leverage, portfolios on the Efficient Frontier maximize return per unit of risk.

Exhibit 2 depicts the Efficient Frontier generated with Callan's long-term capital market assumptions for risk, return and correlation. Each point along the Efficient Frontier represents the return-maximizing portfolio for that particular level of risk. This locus of points represents the efficient opportunity set for investors who are constrained from using leverage. The 8.25% expected return portfolio is highlighted again for comparison purposes.

Exhibit 3 includes the Capital Allocation Line (CAL) which represents the opportunity set for an investor who can either borrow or lend at a given interest rate. In this case the rate is assumed to be 3%, which is Callan's expected return for 90-day T-Bills. The line starts at 3%, slopes upward and is tangent to the Efficient Frontier. The tangency point is significant because it represents the expected return and risk for the optimal portfolio for an investor who can use leverage. This portfolio has the maximum expected Sharpe Ratio of any portfolio on the Efficient Frontier. Throughout the rest of this paper this portfolio will be referred to as the Optimal Mean Variance portfolio. The composition of this portfolio is shown in the pie chart to allow for a comparison with the Risk Parity portfolio.

The Capital Allocation Line illustrates the potential impact of leverage in the CAPM framework.

Exhibit 3 Capital Allocation Line: Stocks, Bonds, Commodities and Real Estate



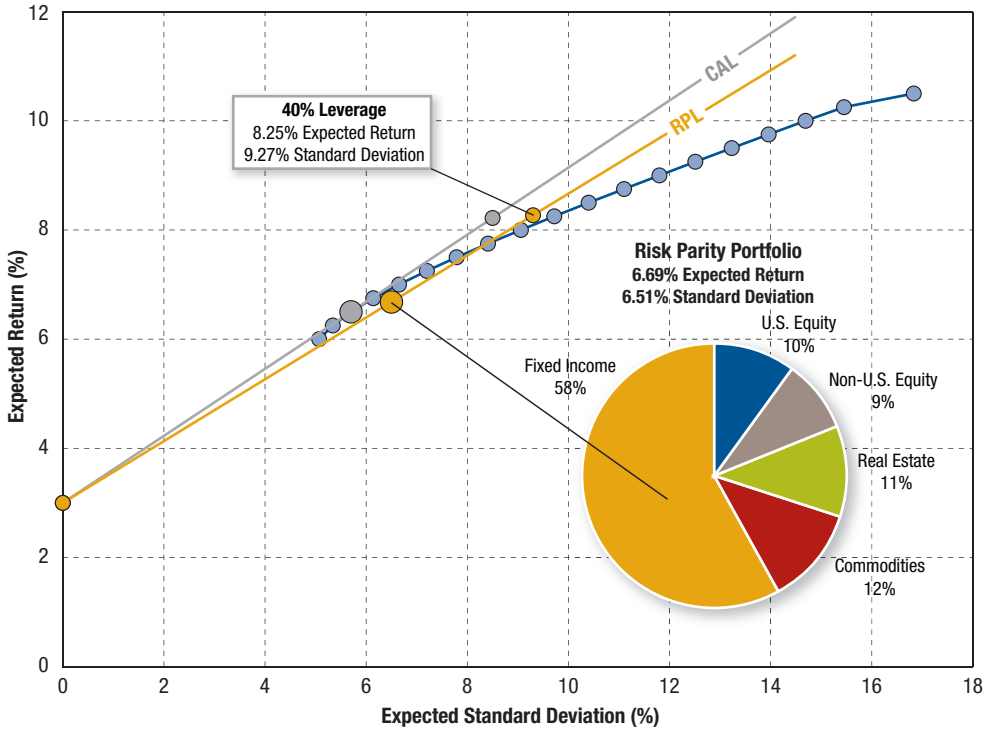
Each point along the CAL line represents the expected return and risk for a different combination of the Optimal Mean Variance portfolio and cash—long cash to the left of the tangency point; borrowed cash (leverage) to the right. The Y-intercept represents a 100% cash portfolio (which for simplicity purposes is assumed to have a standard deviation of zero). The slope of the line is equal to the Sharpe Ratio of the Optimal Mean Variance portfolio (0.61 in this example).

As Exhibit 3 illustrates, all of the points along the Capital Allocation Line (except for the tangency point) are superior to the opportunity set represented by the Efficient Frontier (less risk for each level of return). The 50% leverage point is highlighted on the line because this combination of leverage and the Optimal Mean Variance portfolio is expect-

ed to generate a return of 8.25%. Compared with the unleveraged portfolio on the Efficient Frontier with the same expected return, this combination is expected to reduce standard deviation by approximately 115 basis points. This illustrates the potential impact of relaxing the leverage constraint under the Mean Variance framework.

Exhibit 4 plots both the Risk Parity portfolio and the Risk Parity Line (RPL), which represents the Capital Allocation Line for the Risk Parity portfolio. The slope of the RPL is flatter than that of the CAL, reflecting that the Risk Parity portfolio has a lower expected Sharpe Ratio (0.57) than the Optimal Mean Variance portfolio. As a consequence, all of the levered Risk Parity portfolios are less efficient than the levered Optimal Mean Variance portfolios, delivering greater risk at each level of expected return.

Exhibit ❹ Risk Parity Line versus Capital Allocation Line: Stocks, Bonds, Commodities and Real Estate



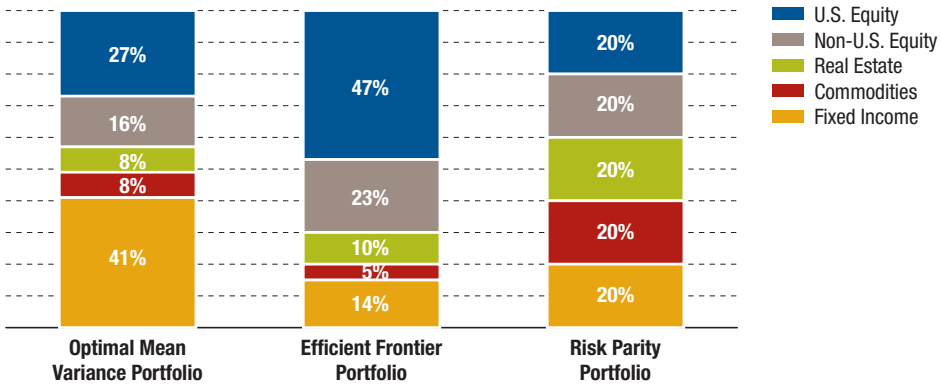
The Risk Parity Portfolio rests below the Efficient Frontier, meaning that other portfolios will deliver higher return for the same level of risk.

On the positive side, because the Risk Parity portfolio has a higher expected return than the Optimal Mean Variance portfolio, it requires less leverage to achieve an 8.25% expected return. This is a potential point in its favor in the real world where the cost of leverage may rise as the amount of leverage employed increases.

Exhibit 5 contrasts the percentage of total expected risk (standard deviation) explained by each asset class under the three different portfolio structures. Per the design, the Risk Parity portfolio is symmetrical, with non-U.S. and U.S. equity each explaining 20% of total portfolio volatility. In the Efficient Frontier portfolio, these two asset classes account for 70% of total risk, while in the Optimal Mean Variance portfolio they explain 29% of risk.

Exhibit 5 Percentage of Total Risk Explained by Asset Class (Based on Forward-Looking Capital Market Assumptions)

The distribution of risk under the Risk Parity approach appeals to people's intuitive understanding of diversification.



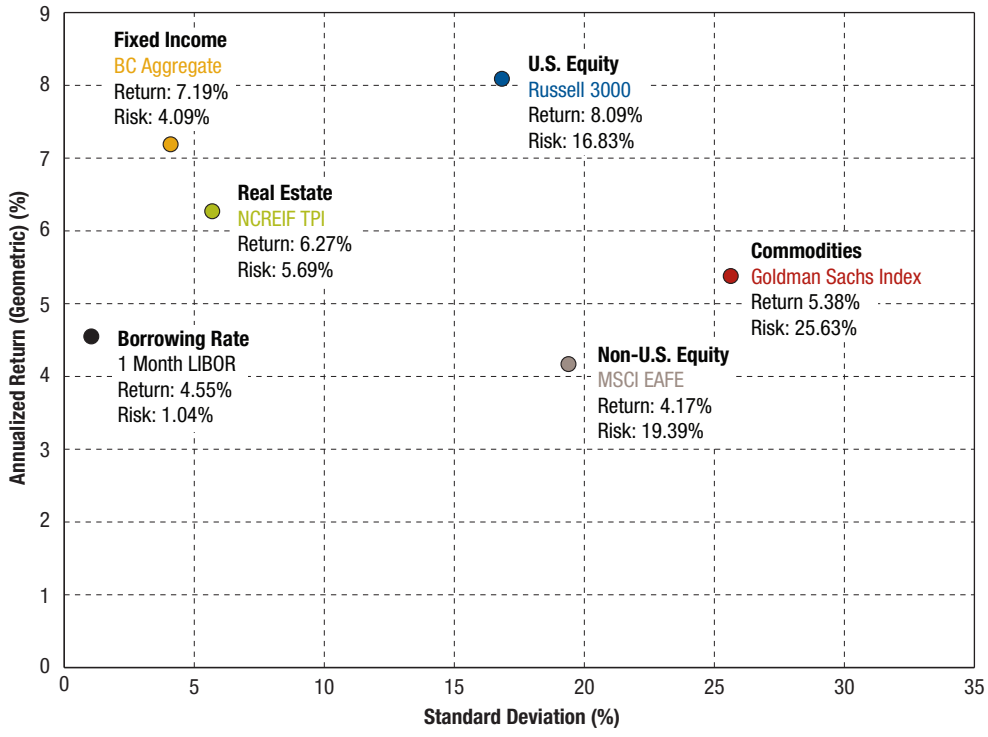
So far, the analysis has been purely theoretical, relying on equilibrium long-term expectations for the capital markets to derive portfolios and then to analyze their relative efficiency. The primary insight this has yielded is that the use of leverage can result in more efficient portfolios than those employed by the typical institutional investor who is constrained to an unlevered approach. A secondary insight is that leverage can allow the sources of risk in the portfolio to be shifted (to suit the needs of the investor) without sacrificing return relative to an efficient unlevered portfolio. All of this assumes, of course, that sufficient leverage can be obtained and maintained at a reasonable cost.

Historical Analysis

In order to better understand the implications of different investment policies it is often useful to examine their performance in the context of recent history. While it is unlikely that the future will look like the past, this type of analysis can provide valuable insights into the real-world risks which are poorly described by simple measures like standard deviation and Sharpe Ratio.

In this next section, policy portfolios are developed under each paradigm using the actual historical returns, risks and correlations for the 20-year period ended September 30, 2009. This approach assumes, in effect, that an analyst had perfect foresight in developing the inputs to derive these portfolios back in the fourth quarter of 1989. While this is unrealistic in practice, it provides the fairest historical comparison of the different approaches by removing possible estimation errors in the inputs from the process. **Exhibit 6** and **Exhibit 7** summarize these inputs.

Exhibit 6 Return versus Standard Deviation: 20 Years Ended September 30, 2009



The equity risk premium over bonds was less than one percent over the last 20 years.

Exhibit 7 Correlations: 20 Years Ended September 30, 2009

Correlation	U.S. Equity	Non-U.S. Equity	Real Estate	Commodities	Fixed Income	Borrowing Rate
U.S. Equity	1					
Non-U.S. Equity	0.83	1				
Real Estate	0.06	0.06	1			
Commodities	-0.03	0.03	0.23	1		
Fixed Income	-0.04	-0.02	-0.19	-0.15	1	
Borrowing Rate	0.05	-0.13	0.28	0.06	0.22	1

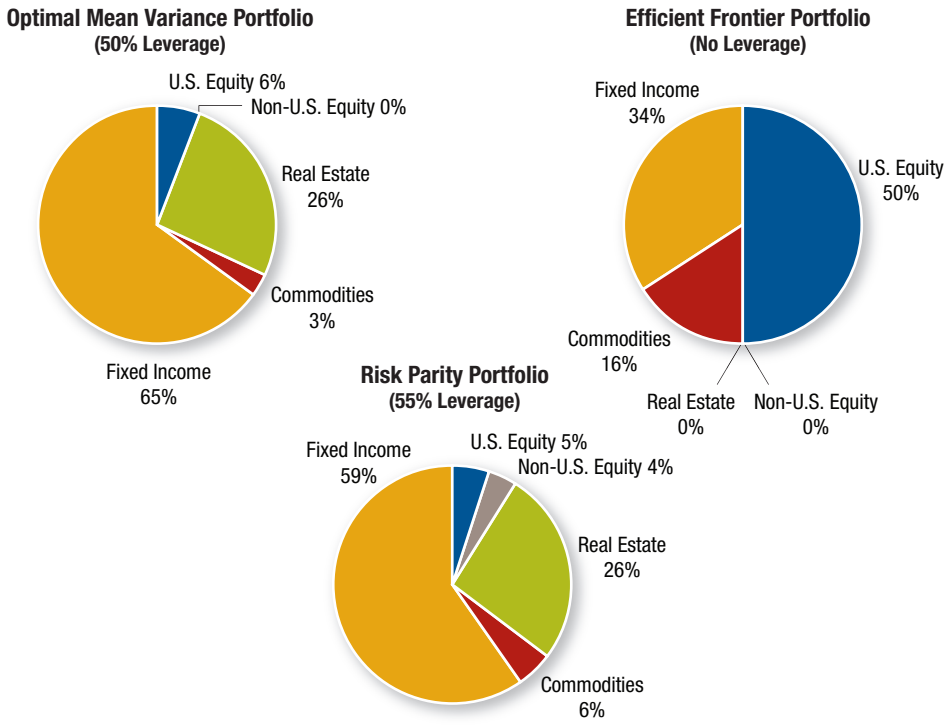
Before describing the policy portfolios that would have resulted from these inputs, it is useful to point out some important differences between the historical results unique to this period and the long-term assumptions typically used in developing policies in practice. First, this was a period of strong relative performance for fixed income, particularly when compared to real estate or non-U.S. equity. Secondly, practitioners will typically increase the assumed volatility for real estate relative to its observed volatility in recognition of its illiquidity relative to the other asset classes. Finally, the correlations between the asset classes (with the exception of U.S. and non-U.S. equity) were universally lower than what has typically been assumed in practice.

All of these factors lead to a markedly different set of efficient portfolios than what were employed by institutional investors over this period. Had they been armed with perfect foresight, for example, it is unlikely investors would have allocated anything to non-U.S. equity. It was also unusual to see an explicit allocation to commodities in institutional portfolios over this period, but their combination of low correlation and high volatility would have made them an appealing asset class in a framework where disciplined rebalancing was employed.

Exhibit 8 details the asset allocation (and associated leverage ratio) for the policy portfolio under each paradigm that would have generated an annualized return of 8.25% over the 20-year period ended September 30, 2009. In order to calculate the leverage ratio for the levered portfolios it was assumed that the investor could consistently borrow at 1-month LIBOR plus 50 basis points. Portfolios were assumed to be rebalanced quarterly with no transactions costs.[3]

3 This is actually an unrealistic assumption for the real estate allocation which in practice has less diversification benefits than is indicated by its correlations because its illiquidity effectively disqualifies it from the normal rebalancing process. The same thing is true of allocations to both private equity and hedge funds.

Exhibit 8 Policy Portfolios that Generated an 8.25% Annualized Historical Return for 20 Years Ended September 30, 2009



The Risk Parity portfolio would have required 55% leverage to generate an 8.25% return.

Comparing these portfolios to their counterparts from the first section of this paper it is easy to see how sensitive each methodology is to changes in the inputs. Non-U.S. equity, for example, is excluded from both of the Mean Variance portfolios due to its poor risk-adjusted return over this period. Real estate is a big component of both of the levered portfolios, but is not employed at all in the Efficient Frontier portfolio. Commodities capture a 16% slice of the Efficient Frontier portfolio in spite of the fact that they generated a lower return than real estate with almost four times the volatility.[4] This illustrates the fundamental challenge for practitioners using any of these methodologies to develop policy portfolios—errors in estimates for any of the inputs (expected risk, return or correlation) will result in inefficient policy portfolios.

4 This non-intuitive result is explained by the high volatility of commodities combined with their low correlation with the other asset classes. On a stand-alone basis the high volatility of commodities works to reduce their return below an acceptable level. This is due to the asymmetrical nature of returns, best explained by the example of needing a 100% return to get back to even after only a 50% loss. In the context of a portfolio of uncorrelated assets, however, the quarterly rebalancing process takes advantage of this high volatility and low correlation to allow commodities to contribute more to the total portfolio return than they would deliver on a stand-alone basis. In the absence of rebalancing, this effect disappears entirely.

Exhibit 9 details the percentage of risk explained by each asset class for the policy portfolios over this period. Consistent with the experience of most institutional investors during this period, U.S. equity explained over 75% of total volatility for the Efficient Frontier portfolio. The risk composition of the two levered portfolios is quite different, but their performance patterns were actually very similar.

Exhibit 9 Percentage of Total Risk Explained by Asset Class: 20 Years Ended September 30, 2009

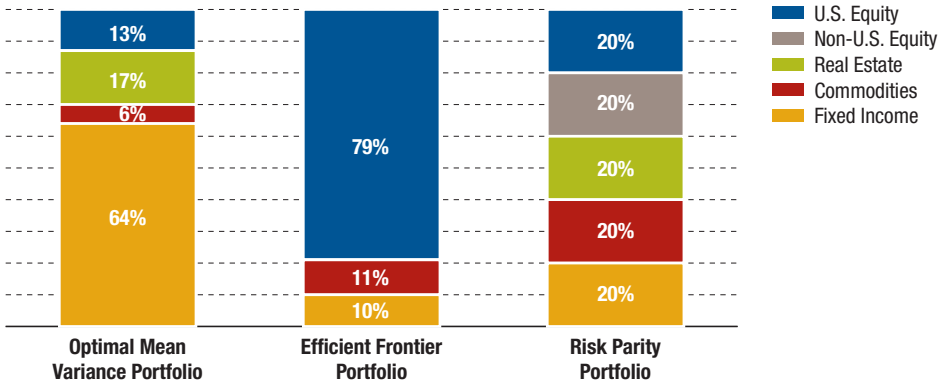
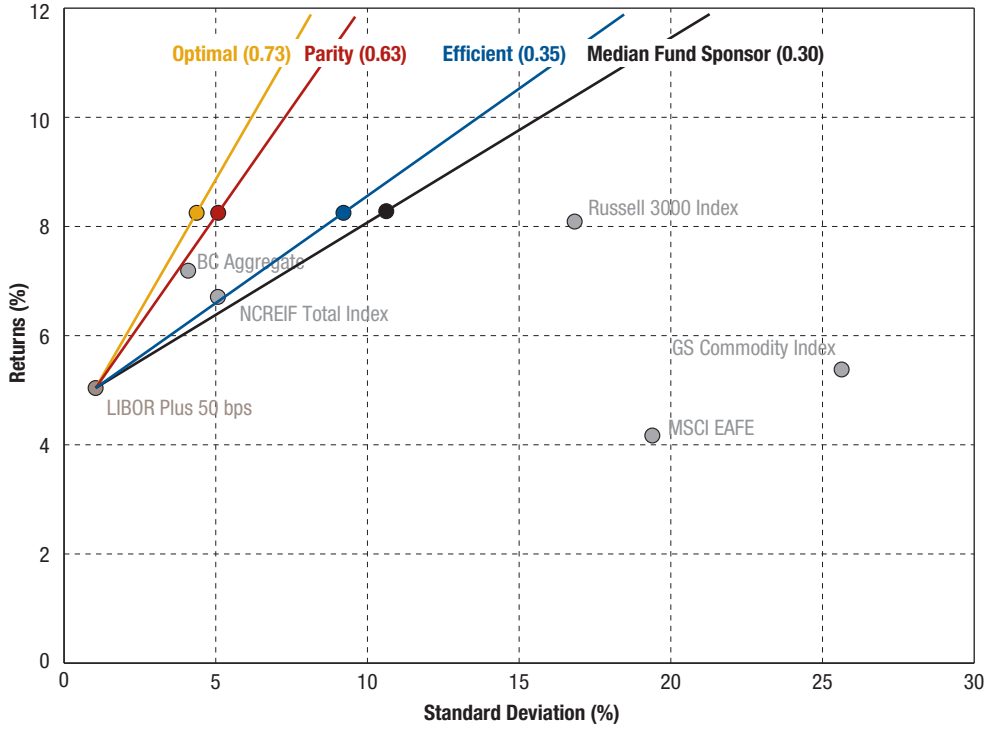


Exhibit 10 plots the return and standard deviation over the 20-year period for each policy portfolio, as well as for the underlying asset classes. As shown by the capital allocation lines, the Optimal Portfolio had the highest Sharpe Ratio (0.73), followed closely by the Risk Parity Portfolio (0.63). The Efficient Frontier Portfolio (0.35) came in a distant third, with almost twice the standard deviation for the same level of return. The median fund in Callan's Total Fund Sponsor Database[5] generated roughly the same return over this period (8.28% annualized) with slightly more risk than the Efficient Frontier portfolio.

Exhibit 10 demonstrates that all three of the policy portfolios (as well as the median fund sponsor portfolio) would have met an 8.25% return objective over this period. The volatility numbers, however, suggest that they would have achieved this result by following very different paths. The lower standard deviation numbers for the two levered portfolios imply that they would have delivered a more consistent return pattern in the range of 8.25% over this period. Exhibit 11 puts this into perspective by showing the cumulative path that each policy would have taken over this period to achieve its 8.25% target return.

5 This database reflects the actual experience across a large group of diversified multi-asset class portfolios employed by institutional investors.

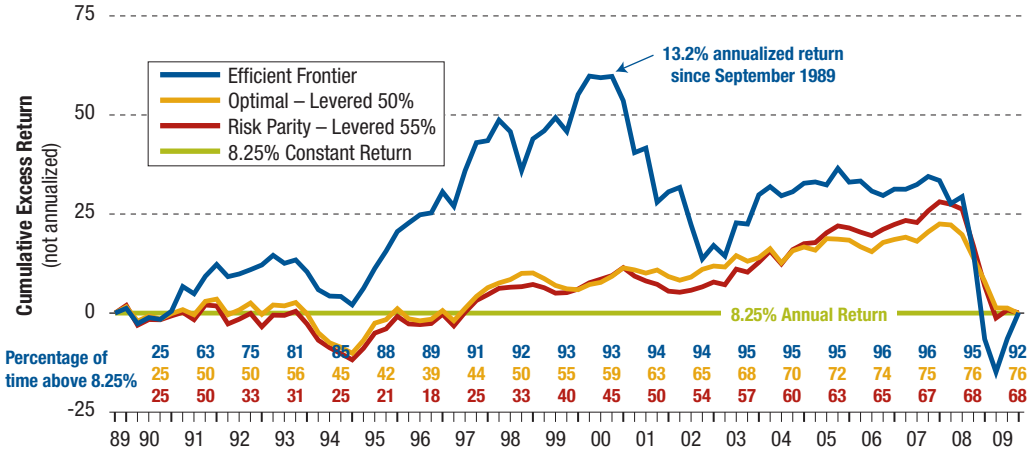
Exhibit 10 Return versus Standard Deviation: 20 Years Ended September 30, 2009



The Sharpe Ratio of the Risk Parity portfolio was roughly twice that of the median fund sponsor over this period.

Exhibit 11 shows the cumulative excess return of each policy relative to an 8.25% constant annual return (the zero line). When the policy line is above the zero line, it means that the policy would have outperformed the 8.25% target through that point (from inception in 1989). When the policy line is below the zero line, it indicates cumulative underperformance of the target since inception. The numbers at the bottom of the chart indicate the percentage of time (through each year end) that each policy delivered a cumulative annualized return in excess of the 8.25% target. The numbers are color coded to match the line colors in the chart (e.g., blue corresponds to the Efficient Frontier policy).

Exhibit 11 Cumulative Excess Return Above 8.25%



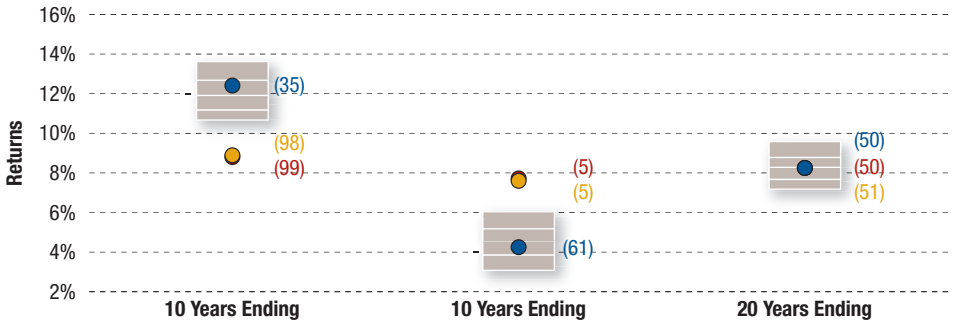
The decade of the 1990s would have been difficult for the levered Risk Parity program.

Using the Efficient Frontier policy as a proxy for the experience of the typical DB plan, Exhibit 11 illustrates what has happened to our industry over the last 20 years, and why unlevered equity-centric portfolios have persisted as the industry standard. Measured from the starting point in September 1989, the typical institutional investor exceeded their return target in 92% of the cumulative time periods through September 2009. At the peak in 2000, equity-centric policy portfolios had exceeded their targets by well over 60% on a cumulative basis. These were the days of extended contribution holidays and generous benefit improvements. This was also an era where many were questioning the role of fixed income in long-term portfolios. Nobody was talking seriously about shifting to a levered fixed income model for the policy portfolio.

Sadly, the party came to an end in 2000, and very few fund sponsors had managed to bank the gains from the surplus years. Over the ensuing decade, equities delivered a negative return, bonds were the top performing asset class and the median fund sponsor experienced an annualized return of only 4.5%. **Exhibit 12** illustrates the bipolar nature of the last 20 years of returns for fund sponsors. It also shows why many of them are now actively looking for alternatives to the equity-centric policy model.

Risk Parity would have been an outlier in both of the last two decades.

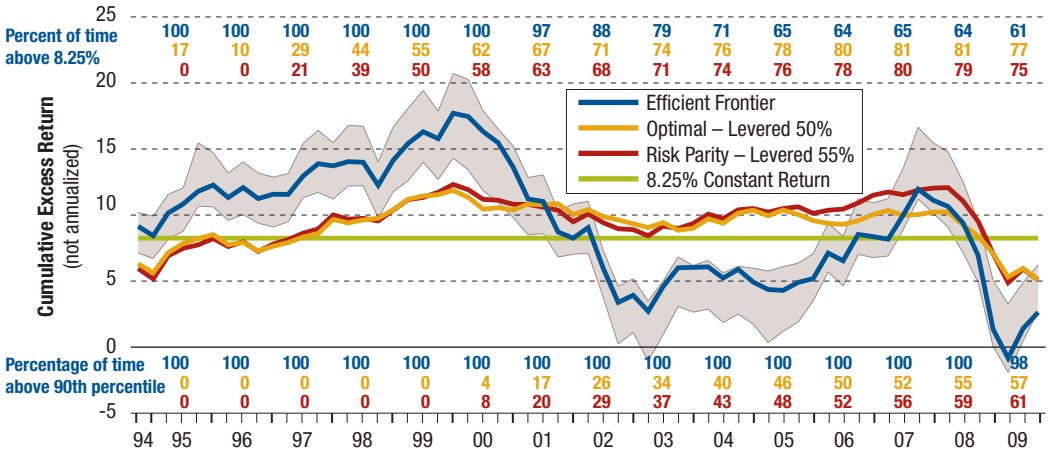
Exhibit 12 Annualized Return Rankings versus Callan's Total Fund Sponsor Database



	10 Years Ending 9/30/99	10 Years Ending 9/30/09	20 Years Ending 9/30/09
Median	11.91	4.50	8.28
Efficient Frontier	12.41	4.25	8.25
Optimal – Levered 50%	8.89	7.60	8.25
Risk Parity – Levered 55%	8.80	7.72	8.25

Exhibit 13 examines the record of each policy from two important perspectives over rolling five-year periods. The numbers at the top of the chart show the percentage of five-year periods that each policy delivered a return in excess of 8.25% (through the end of each year). From this perspective, the two levered policies were ultimately the superior alternatives. Up until the end of 2003, however, they significantly trailed the Efficient Frontier in this dimension.

Exhibit 13 Rolling Five-Year Annualized Returns



The numbers at the bottom of the chart show the percentage of five-year periods that each policy ranked above the 90th percentile worst-performing fund in Callan's Total Fund Sponsor Database. From this perspective, the Efficient Frontier policy was the clear winner, remaining inside the pack over the 20-year period. It is evident that while the two levered policies delivered their 8.25% return at a significantly lower level of volatility, they would have both had a very difficult time surviving long enough to deliver on their long-term promise.

A successful investment policy must be designed to persist, not only through market cycles and unexpected investment outcomes, but also through turnover at the staff, board, consultant and the investment advisor levels. Historically, the most durable investment policies have been simple, low-cost and have relied on long-term exposure to stocks, bonds and equity real estate. Employing this industry standard has had the collateral benefit of ensuring that a fund sponsor's portfolio will not significantly underperform its peers, even with a sub-standard implementation. A policy which diverges significantly from this standard should be especially well supported and documented. Effective communication of the policy's goals and objectives on an ongoing basis will be critical to its survival.

Effective communication of the policy's goals and objectives on an ongoing basis will be critical to its survival.

Practical Considerations

As this analysis has shown, the introduction of leverage at the policy level creates the potential for tailoring the return pattern of the policy portfolio to suit the specific needs of different plan sponsors. Assuming that the benefits of these tailored solutions are sufficient to outweigh the potential risks outlined above, the use of leverage still creates a number of operational and portfolio management challenges which need to be explicitly addressed for a successful implementation.

From an investment policy perspective the most critical question that needs to be addressed on an ongoing basis is the targeted amount of leverage for the portfolio. Determining the targeted level of leverage requires an assessment of the expected return of the underlying portfolio compared with an assessment of the cost of financing. Fluctuations in interest rates throughout the year may dictate changes in the targeted leverage ratio. Developing a policy that strikes a balance between being sufficiently dynamic without being overly reactionary is not a trivial undertaking.

In times of stress, a poorly structured debt portfolio can significantly aggravate the problems being experienced elsewhere within the overall structure.

The structure of the financing portfolio is also a critical ongoing concern. There are a wide variety of tools available to the institutional investor to structure a debt portfolio. These include direct sources of financing such as lines of credit or Pension Obligation Bonds, as well as a whole host of derivative instruments such as swaps, futures and options. Leverage can also be introduced through the use of limited partnerships where borrowing is employed at the strategy level, as in many real estate, private equity and hedge funds. Structuring the debt portfolio to achieve the lowest cost of borrowing, while also ensuring that its liquidity and duration are well matched to those of the underlying investment portfolio, is as important to the success of the program as any of the other traditional investment management functions.

Crisis management is also a consideration in running a leveraged portfolio. In times of stress, a poorly structured debt portfolio can significantly aggravate the problems being experienced elsewhere within the overall structure. If a line of credit is called by the lender, for example, and no other sources of leverage exist, it can force the sale of underlying illiquid securities at the worst possible time. This can force an investor to realize losses that might otherwise have been avoided if they had built a more robust lending portfolio. A persistent, negatively sloped yield, while not necessarily a crisis, can also create problems for a leveraged portfolio which, like most financial institutions, will likely rely primarily on shorter-term financing. Maintaining a commitment to a policy where the cost of borrowing is perceived to exceed the expected return of the underlying portfolio is likely to prove challenging.

Finally, the introduction of leverage at the policy level will require advances in the monitoring, reporting and risk-management tools employed by institutional investors. While banks and insurance companies have long employed tools that look at both the debt and equity sides of the portfolio to monitor risk and measure success or failure, the tools employed by the typical pension fund or endowment focus almost exclusively on the equity portfolio. Developing and implementing systems to capture data and analyze the complex interactions between a sophisticated multi-asset class portfolio and the financing portfolio designed to support it will likely prove to be a challenge and a potential opportunity for custodians, consultants and investment staffs charged with the oversight of levered institutional portfolios.

Conclusion

After what the industry has gone through over the last 10 years it is not surprising that fund sponsors are evaluating alternatives to the equity-centric policy standard. Changes in accounting rules have further accelerated this trend for corporate sponsors, many of whom have frozen their plans and increased their exposure to long duration fixed income. Without leverage, however, any movement away from the equity-centric model comes at the cost of long-term return.

Relaxing the leverage constraint at the policy level can allow fund sponsors to meet their return objectives while also shifting risk away from equities. It does, however, introduce new risks that need to be carefully considered. Efficiently implementing a levered portfolio requires an ongoing resource commitment to the financing side of the equation. Counterparty risk must be carefully managed and all sources of leverage, from bank financing to the use of derivatives, should be examined to build an efficient, diversified financing portfolio.

Using leverage to engineer a less equity-centric policy portfolio will not alleviate investors of the need to maintain a long-term perspective.

While careful implementation can reduce many of the risks associated with a levered policy portfolio, there is one risk that will always remain. By design, the underlying portfolio will have a very different pattern of returns from the portfolio employed by the typical long-term investor. Applying leverage will serve to further amplify this difference. In periods characterized by rising equity markets, particularly if they are accompanied by flat or inverted yield curves, the levered policies have the potential to underperform peers by thousands of basis points. During these periods, fund sponsors who choose to implement this type of approach will need to be able to convince their constituents to maintain a long-term perspective. Ironically, that is the same challenge that the proponents of the traditional approach are facing today.

Author

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