Capturing Equity Risk Premium – Revisiting the Investment Strategy

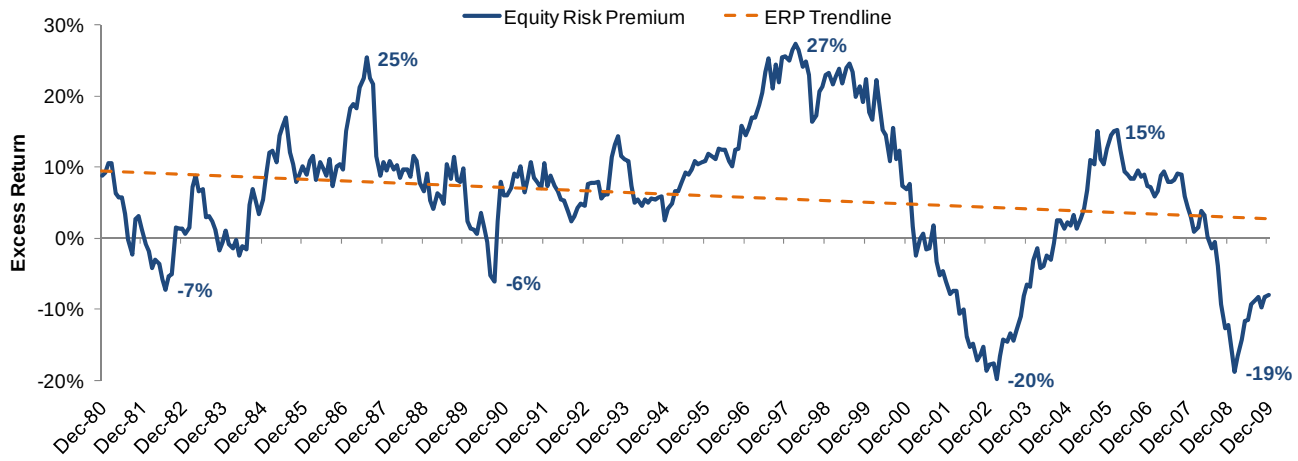
An Alternative Investment Specialist

Prisma Capital Partners

Introduction: Equity Risk without Reward?

Institutions with return-oriented investment portfolios have traditionally relied upon significant allocations to long-only equity strategies to generate the premium required to meet long-term objectives. But have long-only equity strategies truly delivered upon this promise? Chart 1 depicts the trend of the historical equity risk premium for U.S. stocks, defined as the annualized rolling three-year excess return of the S&P 500 Index over three month U.S. Treasury Bills.

Chart 1: Rolling 3-year Annualized Excess Return of the S&P 500 over 3-month US T-Bills



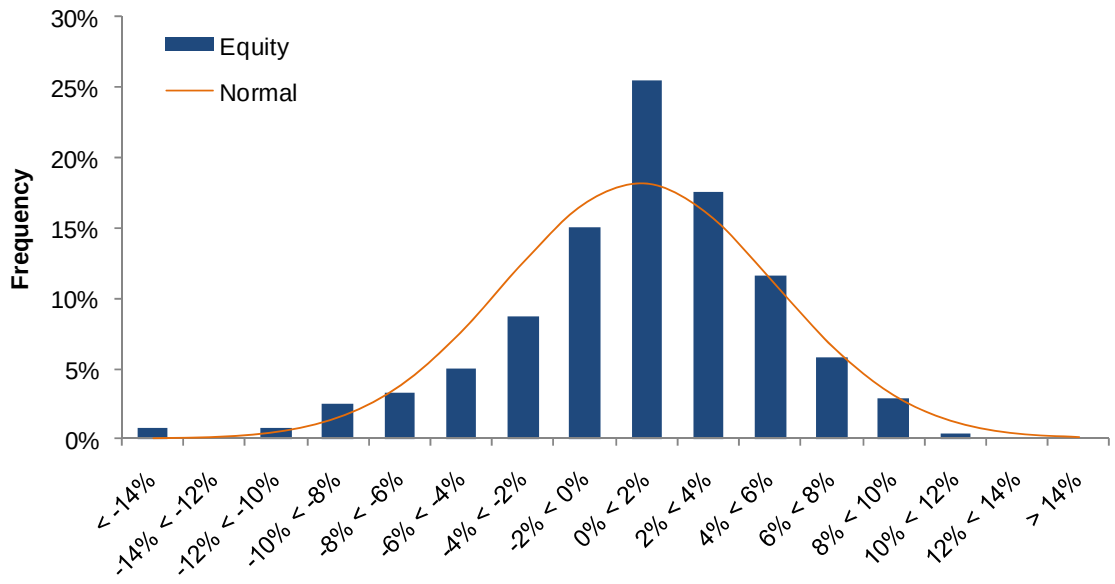
Source: PerTrac.

Note: Equity Risk Premium is represented by the S&P 500 Index total return minus the 3-month T-bill return over the period January 1978 through December 2009.

In addition to the volatility of this risk premium, the chart reveals two other unfavorable patterns: (i) the premium has been trending downward over the past 30 years, and (ii) drawdowns experienced during the last decade have been deeper and of longer duration than those of the 1980s and 1990s. While the persistence of these trends is by no means guaranteed, they have created significant challenges for equity-oriented portfolios at a time when low funding levels have pushed institutional investors toward higher exposures to equities in conjunction with a higher reliance on the equity risk premium.

To compound the problem, financial models and optimization tools used in asset allocation typically assume a normal distribution of returns for each asset class, but equity returns have not exhibited a normal distribution pattern, as Chart 2, demonstrates.

Chart 2: Monthly Return Distribution of S&P 500 (Jan-90 to Dec-09)



Source: PerTrac

Note: Equity returns are represented by the S&P 500 Index total return. The distribution above includes all monthly returns over the period January 1990 through December 2009.

In statistical parlance, the S&P 500's returns exhibit a negative skew, meaning the left tail of the distribution is larger than the right tail. These "left tail" outcomes reflect negative returns that equate to losses and portfolio drawdowns that may exceed an institution's risk tolerance irrespective of its originally stated holding period. As a result of the realized equity risk premium and negative return skew, Prisma believes institutions are now searching for ways to reduce this left tail risk (i.e., preserve greater amounts of capital during market downturns) while still retaining exposure to the equity markets as well as to specific stock selection.

Prisma believes one solution is to add equity-oriented strategies, such as long/short equity strategies, whose return profiles mirror these objectives of a rewarding return, lower volatility, and less negative skew.

Incorporating Hedged Equity into an Equity Allocation

Situated squarely in the realm of hedge funds, hedged equity strategies* have existed in the U.S. for well over 50 years, yet they have always carried the "alternative" label due to a combination of regulatory and structural factors. That categorization is inexorably changing as assets in these strategies grow and as new variants (e.g., 130/30 long/short mutual funds) reach the mainstream investment community.

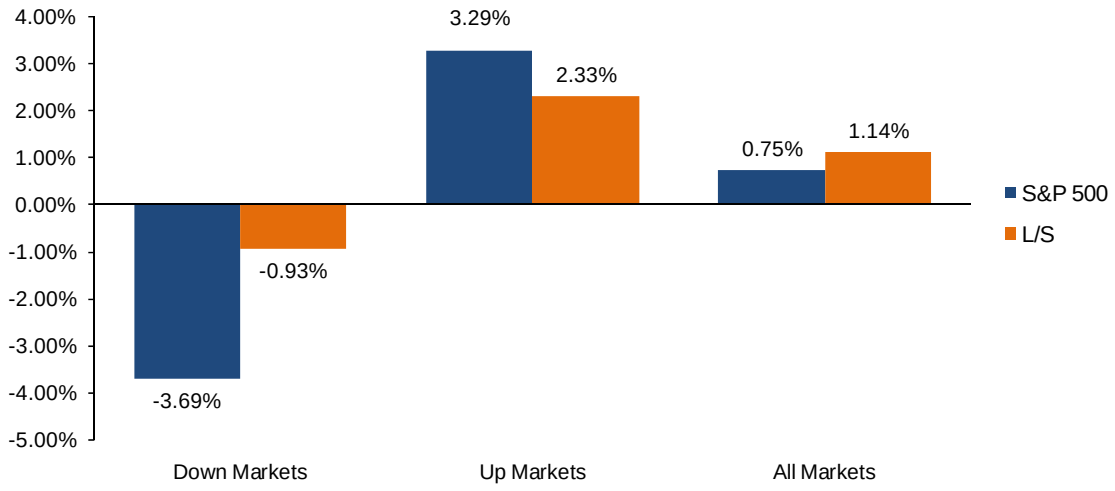
Hedged equity strategies offer the possibility of several positive benefits, beginning with more potential sources of return than their long-only counterparts. Specifically, adept managers of hedged equity strategies have historically generated returns in excess of applicable benchmarks (i.e., "alpha") from both long and short side investments. In addition, successful hedged equity managers also have the ability to generate alpha by managing their long and short exposures in line with market developments: generally, they would add exposure to the

** For the purposes of this paper, we define hedged equity strategies as all strategies that incorporate equity short sales as a critical component of success. As such, this list includes long/short equity as a composite group, as well as the equity market neutral and short-bias sub- strategies.*

market as they see indications for positive future returns grow, and reduce long exposure and/or increase their short side portfolio as the outlook dims. Finally, hedged equity managers may make judicious use of leverage to enhance their stock selection abilities on both the long and the short side.

Historically, investors who have employed hedged equity strategies in their portfolios have on balance realized both better absolute and superior risk-adjusted returns relative to those investors who have invested solely in long-only strategies. Chart 3 compares the average monthly returns of a well known long/short index, HFRI Equity Hedge*, with those of the S&P 500 over the past 20 years in both up and down markets.

Chart 3: Average Monthly Returns in Up and Down Markets (Jan-90 to Dec-09)



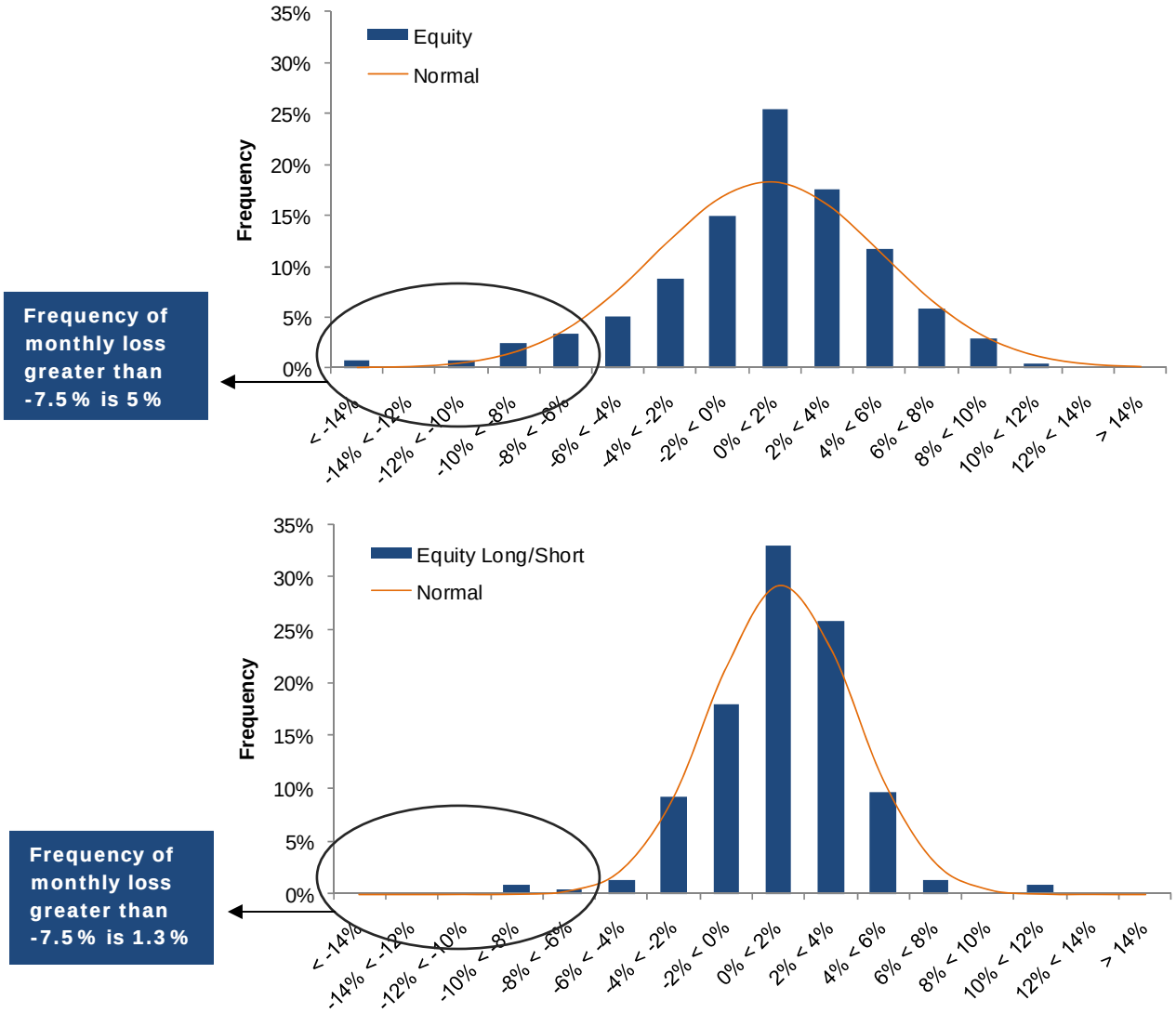
Source: PerTrac

Notes: S&P represents the S&P 500 Index total return and L/S is represented by the HFRI Equity Hedge Index. Up Markets represent returns for each series during those months in which the S&P 500 Index total return rose, while Down Markets represent returns for each series during those months in which the S&P 500 Index total return fell.

Chart 4, presents the distribution of this HFRI index's returns alongside that of the S&P 500 and highlights the left tail outcomes for each distribution with a focus on monthly losses greater than 7.5%, the level that is approximately two standard deviations from the S&P 500's mean monthly return of .75%. The improved risk profile of the long/short equity index's return distribution is noteworthy as this index has historically exhibited losses of much less severity than its long-only counterpart, thereby highlighting the capital preservation attribute of a hedged strategy.

** All HFR return series cited in this paper are presented net of all fees.*

Chart 4: Monthly Return Distributions of S&P 500 and Equity Long/Short (Jan-90 to Dec-09)



Source: PerTrac

Note: Equity returns are represented by the S&P 500 Index total return. L/S Equity returns are represented by the HFRI Equity Hedge Index total return. Distributions above are for all monthly returns over the period January 1990 through December 2009.

Customizing Risk Levels: A Function of the Hedged Equity Allocation

What is the impact of substituting a hedged equity allocation for a portion of a traditional long-only portfolio? Table 1, lists the historical return, volatility, and Sharpe ratio of a portfolio 100% invested in the S&P 500 Index over the past 20 years in comparison with similar statistics of portfolios with 20% and 40% allocations to the HFRI Equity Hedge index as a proxy for the universe of long/short equity managers.

Table 1: Portfolio Statistics (Jan-90 to Dec-09)

Statistics	100% S&P 500 0% L/S Equity	80% S&P 500 20% L/S Equity	60% S&P 500 40% L/S Equity
Returns (annualized)	8%	9%	11%
Volatility (annualized)	15%	13%	12%
Sharpe Ratio	0.26	0.38	0.57
Frequency of monthly loss > -7.5%	5%	3%	1%

Notes: Returns and volatility statistics are monthly results converted to annualized equivalents. L/S Equity returns are represented by the HFRI Equity Hedge Index total return. Sharpe ratio is calculated using a risk free rate of 4.1% p.a. Assumes annual rebalancing for 80/20 and 60/40 portfolios.

Because the equity long/short strategy has produced superior returns with less volatility over this extended period, the Sharpe ratio improves markedly for each incremental increase in the equity long/short allocation, while the frequency and magnitude of the left tail events are reduced. As Table 2 shows, the results are similar if one limits the analysis to the past three years under the presumption that the financial markets have undergone radical change since the start of the most recent recession in late 2007.

Table 2: Portfolio Statistics (Jan-07 to Dec-09)

Statistics	100% S&P 500 0% L/S Equity	80% S&P 500 20% L/S Equity	60% S&P 500 40% L/S Equity
Returns (annualized)	-6%	-4%	-3%
Volatility (annualized)	20%	18%	16%
Sharpe Ratio	-0.45	-0.43	-0.40
Frequency of monthly loss > -7.5%	14%	8%	6%

Notes: Returns and volatility statistics are monthly results converted to annualized equivalents. L/S Equity returns are represented by the HFRI Equity Hedge Index total return. Sharpe ratio is calculated using a risk free rate of 3.00% p.a. Assumes annual rebalancing for 80/20 and 60/40 portfolios.

However, these superior risk-adjusted returns are not available without some indirect costs. Specifically, virtually all hedged equity strategies are packaged in hedge fund formats, which typically offer less liquidity than traditional long-only investment vehicles. Most equity-oriented hedge funds offer quarterly liquidity upon a 30 or 45 day notice period, often combined with the requirement that an investor stay in the fund for at least a year. Additionally, hedge fund managers typically charge higher fees than their long-only counterparts; the largest difference being that hedge funds charge performance fees usually equal to 20% of their positive returns. While the hedge fund returns cited herein are net of all of those fees, performance fees may be considered to be non-standard by certain investors, which might create an additional hurdle within the investment approval process. Lastly, hedged equity managers may offer less than full transparency into their underlying holdings, especially with regard to their short positions.

Implementation: Targeting Beta to Manage Risk

As the hedge fund industry has matured, Prisma believes many hedged equity managers have learned the benefit of sticking to their "knitting", which includes managing the equity beta exposure of their portfolios. Assuming these managers can continue to manage their portfolios' beta with some degree of consistency, Prisma further believes institutions can flexibly use the wide range of normative betas of various different managers to construct a robust portfolio of hedged equity funds that targets a chosen aggregate beta.

To frame the implementation process, we suggest categorizing each hedged equity fund into one of the following three groups of beta sub-classifications:

1) Long-biased (i.e., equity beta consistently above 0.3)

2) Equity market neutral (i.e., equity beta consistently between 0.3 and -0.2)

3) Short-biased (i.e., equity beta consistently below -0.2)

Prisma believes an aggregate target beta portfolio can be constructed by mixing together in the appropriate amounts managers from each of these three groups.

Prisma believes each of these sub-categories tends to be a "preferred habitat" for various hedge fund managers depending upon the nature of their strategy and their comfort and/or expertise at assuming exposure to the underlying equity market. Fortunately, each group's broad historical return stream can be derived from HFR's historical database, either directly in the case of equity market neutral and short bias, or by induction in the case of long-biased managers. In the latter case, Prisma calculated the historical monthly return series for long-biased managers within HFR's database by backing out the returns of managers in the other two categories (i.e., short bias and equity market neutral).

Table 3 presents return and risk statistics for these three series over the 20 year period ending December 31, 2009.

Table 3: Portfolio Statistics (Jan-90 to Dec-09)

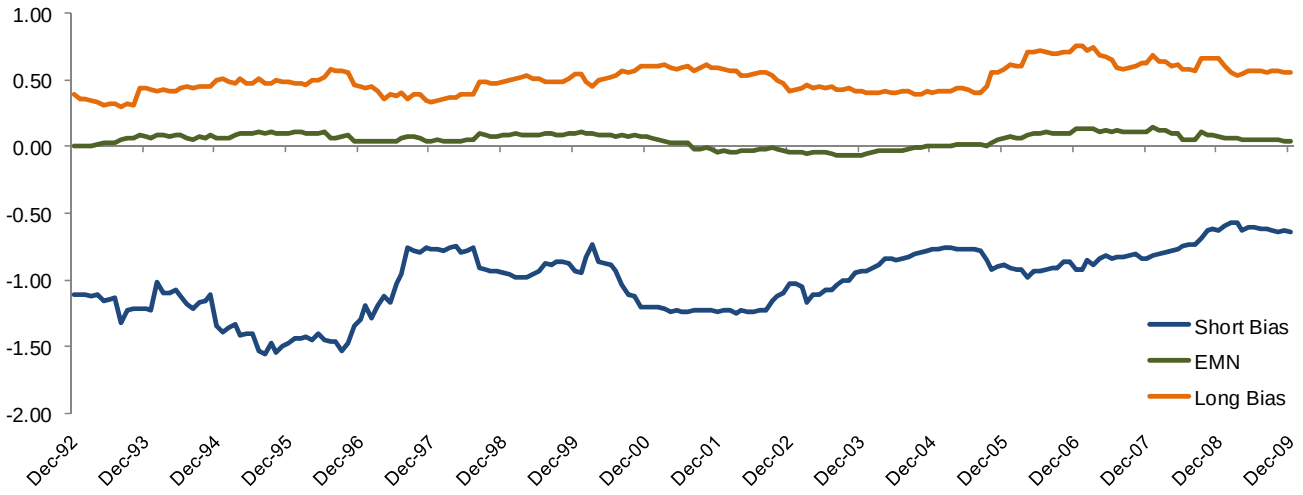
Statistics	HFRI Short Bias	HFRI Equity Market Neutral	Extracted HFRI Long Bias*
Returns (annualized)	1.3%	7.7%	15.0%
Volatility (annualized)	19.5%	3.2%	10.6%
Sharpe Ratio	-.15	1.09	1.03
Beta to S&P 500	-.91	.04	.50
Frequency of monthly loss > -7.5%	6.7%	0%	1.3%

Notes: Returns and volatility statistics are monthly results converted to annualized equivalents. Sharpe ratio is calculated using a risk free rate of 4.1% p.a. Assumes annual rebalancing.

The historical betas listed above are widely dispersed and appear to constitute the appropriate building blocks for target beta hedge fund portfolios. But what has been the historical stability of these betas? Chart 5, presents the rolling 3 year betas for each of these three return series.

** HFRI Equity Hedge adjusted for the removal of the returns of HFRI Short Bias and HFRI Equity Market Neutral managers.*

Chart 5: Historical Rolling 3-Year Betas of the HFRI Equity Strategies to the S&P 500 (Jan-90 to Dec-09)



Individual charts for each of these series combined with summary statistics (i.e., means, minimum and maximum values, and standard deviations) are presented in Appendix I.

Expanding the Universe in Search of Alpha

As described in an earlier section of this paper, certain hedged equity managers attempt to add alpha by flexibly adjusting their portfolio beta as circumstances warrant*. Although successful managers of this type are less prevalent, Prisma believes this fourth category should be included in a portfolio of hedged equity funds on an opportunistic basis even though, by definition, the stability of these managers' betas is much lower than those of the first three categories listed above.

Inclusion of other diversification strategies within the hedged equity space may also be appropriate. For example, we believe more newly launched "emerging" managers are well positioned to deliver greater alpha than their larger, more established counterparts because newer firms tend to have portfolio manager(s) more directly involved in security analysis coupled with a greater opportunity set (e.g., they can invest in smaller capitalization companies without having much market impact), and they can be more nimble in the management of their exposures, including beta. Diversification is also possible across different investment styles (e.g., growth versus value orientations), industry sector specializations, and geographic concentrations.

Assessment: Choosing the Appropriate Benchmark

Prisma believes targeting beta within a portfolio of hedged equity funds produces the added benefit of simplifying the tasks of both risk management and performance assessment. While one can define "the market" in a variety of ways and try to narrow the definition of beta to a specific style, sector, or geography, a simple place to start is a broad market index, such as the S&P 500. To the extent a portfolio or sub-portfolio targets a beta of less than one, the benchmark should also include a component of the risk-free return, which may be defined as

** Since the extracted long bias return series includes all managers not classified as short bias or equity market neutral, managers with a flexible beta strategy are captured within this group.*

the three month U.S. Treasury Bill rate. Not surprisingly, the alpha of equity market neutral managers is frequently calculated with this risk-free rate as the benchmark.

Using these inputs, the benchmark for a portfolio with a target beta becomes that beta multiplied by the market index (e.g., S&P 500) plus the quantity of one minus the target beta all multiplied by the risk-free rate. For example, the benchmark for a portfolio with a target beta of .25 using this calculation would be .25 multiplied by the S&P 500 Index plus .75 multiplied by the risk-free rate. The mathematical formula of this calculation is provided in Appendix II.

Target Beta Construction: A Conservative Approach

We have identified three sub-series that comprise the HFRI Hedged Equity return series that we believe may serve as potential building blocks to create target beta portfolios. But what combination of weightings of these series should we use? Clearly, there are multiple solutions to this problem, and various algorithms exist to identify the combination that produces the highest result for a variety of metrics, such as return or Sharpe ratio. For the sake of conservatism, Prisma used the three return series whose statistics were presented in Table 3 above to solve for the combination that produced the lowest return for each target beta. Table 4a lists the weights for each of the three categories (i.e., Short Bias, Equity Market Neutral, and Long Bias as derived from HFR's database) that achieve target betas from zero to .50 under this "worst case" return constraint. Table 4b then presents the risk and return statistics for those target beta portfolios, which have been rebalanced annually to the original weights listed in Table 4a.

Table 4a: Derived Weightings to Achieve Target Betas

	Beta Target		
Return Series	0	.25	.50
Extracted HFRI Long Bias	0%	46%	100%
HFRI Equity Market Neutral	96%	54%	0%
HFRI Short Bias	4%	0%	0%
Total	100%	100%	100%

Table 4b: Pro-forma Portfolio Statistics Based upon Historical Data (Jan-90 to Dec-09)

	Beta Target		
Statistics	0	.25	.50
Returns (annualized)	7.5%	11.1%	15.0%
Volatility (annualized)	3.1%	5.7%	10.6%
Sharpe Ratio	1.07	1.21	1.03
Frequency of monthly loss > -7.5%	0%	0%	1.3%
Benchmark Returns (annualized)	4.1%	5.2%	6.2%
Alpha (Return – Benchmark)	3.3%	5.9%	8.8%

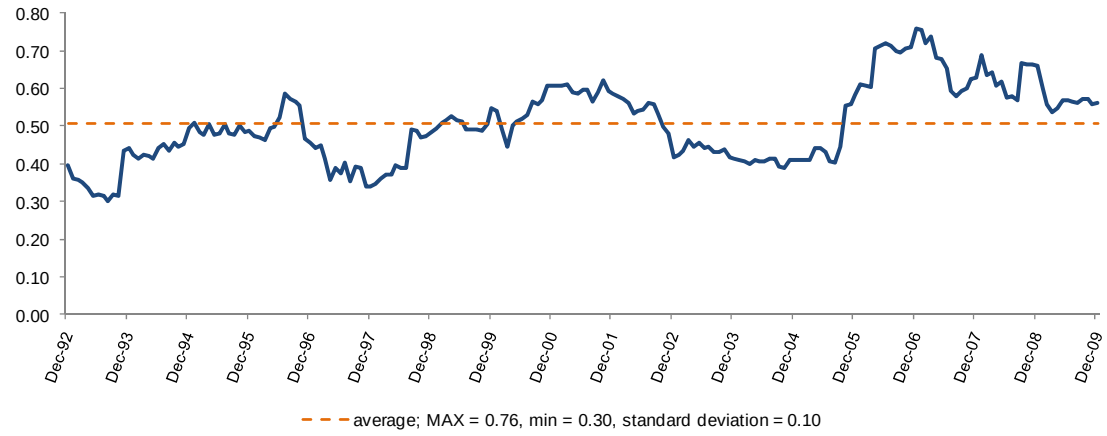
Notes: Returns and volatility statistics are monthly results converted to annualized equivalents. Sharpe Ratio is calculated using a risk free rate of 4.1% p.a.

These results appear to make a compelling case for considering the use of various combinations of equity hedge investment styles to create target beta portfolios insofar as historic returns of such portfolios using index data compare favorably with traditional long-only portfolios, especially on a risk-adjusted basis. Recall as well that Prisma solved for the combination of weightings among the three return series that produced the lowest historical annualized return for a given target beta. While this constraint did not move the composition of the .50 target beta portfolio away from a 100% allocation to the Long Bias category, it did produce meaningfully lower returns for the 0 and .25 target beta portfolios. This observation does not mean to imply that an investor could not have achieved lower returns than those indicated in Table 4b, because these results assume a fully invested posture (i.e., no market timing) and annual rebalancing, neither of which may be replicable in practice. However, the magnitude of the alphas calculated above indicates to Prisma that hedged equity strategies do add value and thereby warrant consideration at least as a complement to traditional long-only allocations within diversified portfolios.

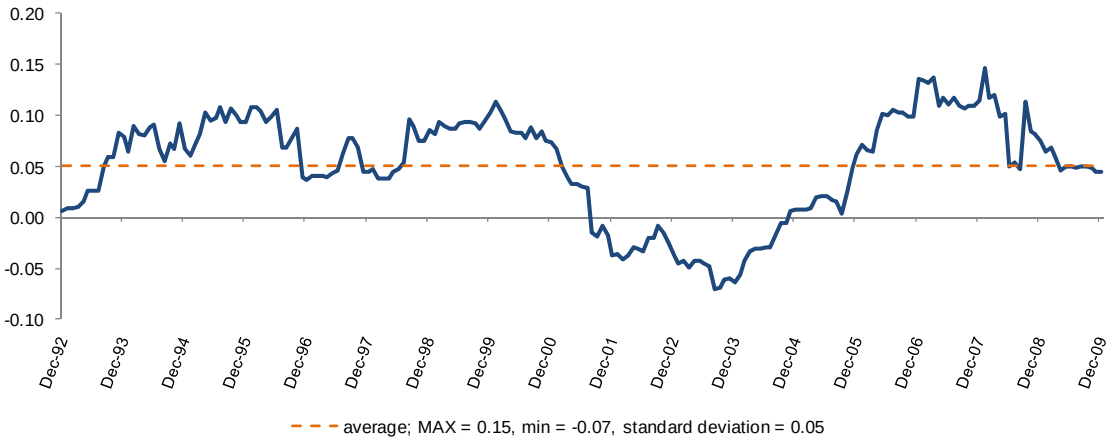
As a final comment, we note that the hedge fund return series used herein are net of all fees at the hedge fund level. While investors in hedged equity funds have historically paid incentive fees on all net new profits despite incurring some amount of beta exposure, on average, Chart 3 indicates the funds' alpha has more than compensated for this shortcoming. However, in structuring a portfolio of hedge funds to achieve a target beta, Prisma believes investors should not have to pay fees twice for returns purely generated by market exposure. As such, to the extent advisors and funds of funds that help structure these portfolios charge incentive fees, we recommend they do so only on incremental alpha generation above a beta-adjusted market benchmark.

Appendix I: Historical Betas of Long Bias, Market Neutral, and Short Bias Series

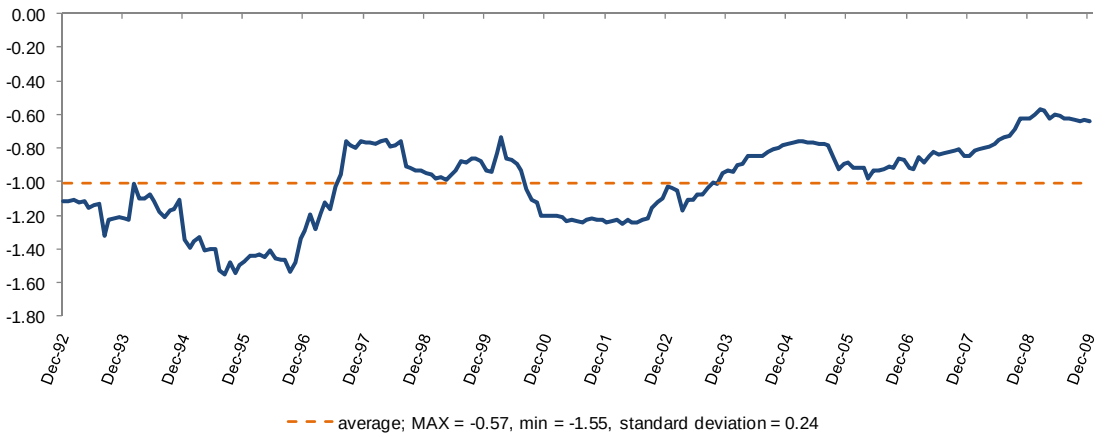
3-year Rolling Beta of Extracted HFRI Equity Long Bias to S&P 500



3-year Rolling Beta of HFRI Equity Market Neutral to S&P 500



3-year Rolling Beta of HFRI Short Bias to S&P 500



Appendix II: Calculation of Benchmark for a Targeted Beta Portfolio

Prisma believes the appropriate benchmark for a targeted equity beta portfolio is a ratio combination of an equity index, with an assumed beta of 1.00, and short-term U.S. Treasury Bills (beta of zero). The calculation of this benchmark is given as:

Benchmark (TB) = (Equity Index Return * TB) + [(1 – TB) * U.S. T-Bills' Return]

Where TB = Target Beta

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