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Risk Mitigation Strategies

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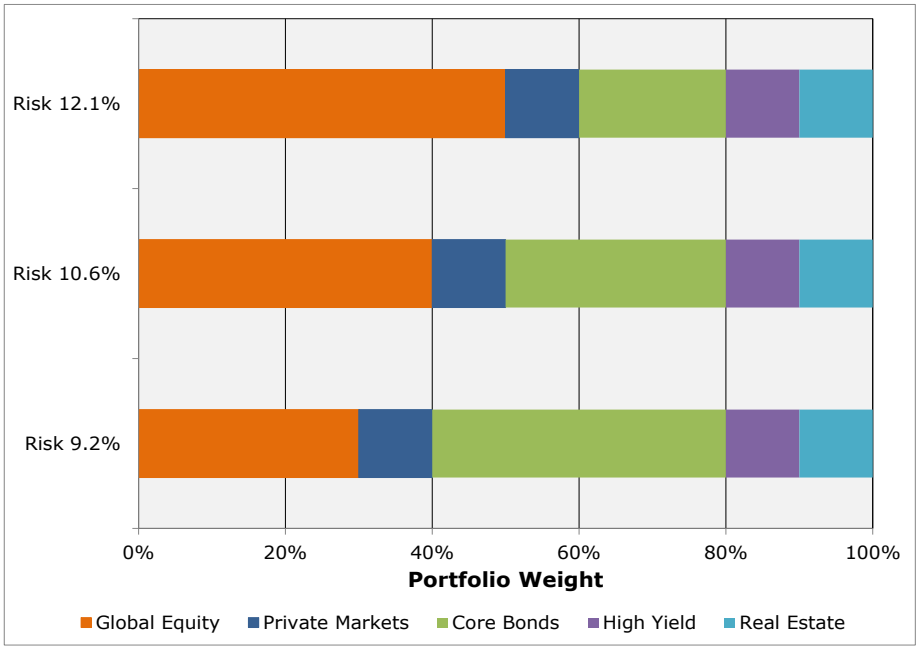
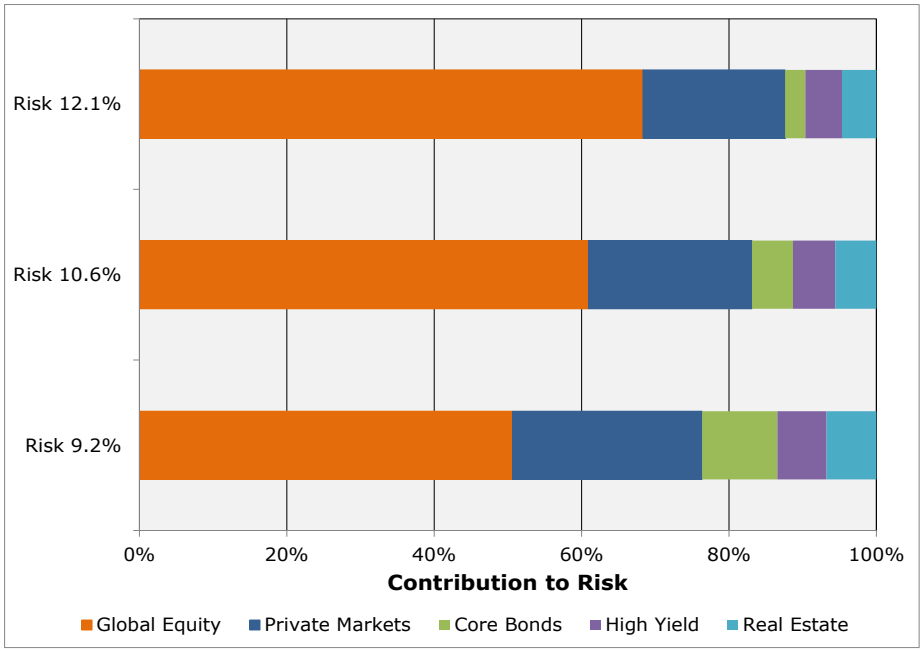
Background

- At an asset allocation level, equities are the primary contributor to risk
- Differentiated strategies are emerging with potential to help mitigate some of the downside risk of an equity centric portfolio





Introduction to Risk Mitigating Strategies

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- The drive to maintain required return targets while avoiding large drawdowns has led institutional investors to consider alternative strategies
- Each approach is designed to diversify or mitigate risk for the total portfolio
- The importance of protecting the portfolio from material drawdowns increases for investors like ERF with fixed obligations that are not tied to the market value of the plan
- Strategies
  - Risk Parity
  - Hedge Funds / Risk Premia
  - Low Volatility Equity – already implemented by Dallas ERF

Risk Parity

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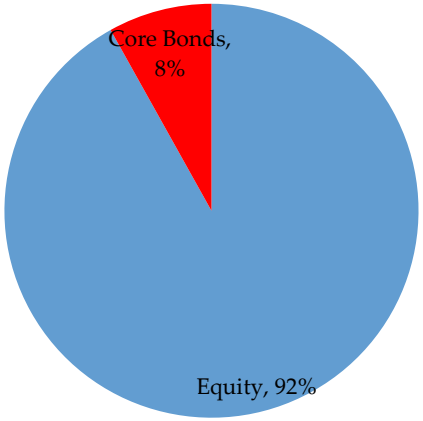
- Risk Parity asset allocation is balanced by **risk**, not by **dollars.**
  - Unleveraged risk parity allocation might offer a nice risk-adjusted return, but it generally does not provide an adequate absolute level of return.

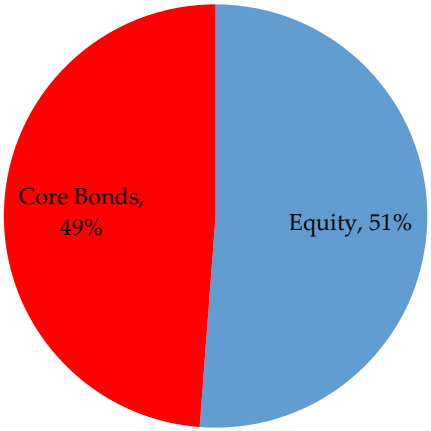
- If, after balancing risk across the asset classes, the portfolio expected return is too low, investors have two courses of action:

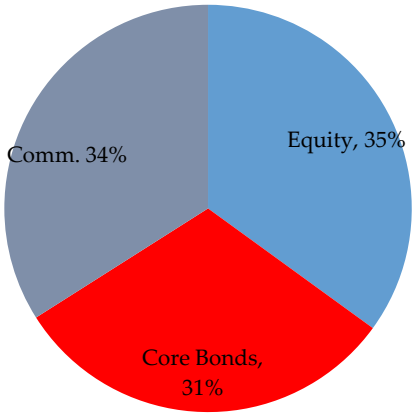
  1. Leverage can be applied to the risk balanced portfolio to increase its expected return, OR
  2. Get less diversified and more concentrated in the riskier asset classes to hit targeted return levels

Risk Parity Utilizing Three Asset Classes

	Traditonal Portfolio		Risk Parity Porfolio		Risk Parity Porfolio inc. Commodities	
	Dollar %	Risk %	Dollar %	Risk %	Dollar %	Risk %
Equity	60%	92%	40%	51%	30%	35%
Core Bonds	40%	8%	134%	49%	110%	31%
Commodities	0%	0%	0%	0%	40%	34%
Cash	0%	0%	-74%	0%	-80%	0%
Total	100%	100%	100%	100%	100%	100%
Expected Return	5.7		6.3		6.5	
Expected Risk	10.9		10.8		10.7	
Expected Sharpe	0.45		0.51		0.53	







Equity
Core Bonds
Commodities

Risk Parity

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Risk Parity is about achieving a better balance of risk across a portfolio, admitting that we do not know what the future holds.

- Risk parity portfolio will be diversified to withstand unpredictable changes in market regimes when they occur
- Risk parity portfolio won't necessarily do worse if rates rise… it depends on how and why rates rise, vs. market expectations

- Adopting Risk Parity requires stakeholder buy-in
  - Risk Parity is an approach that requires a long-term perspective
  - Risk Parity portfolios will look different than traditional portfolios
  - All stakeholders need to understand and support the concept to avoid mis-timing decisions

- Proceed with realistic expectations
  - Level of leverage may/will change over time
  - Long-term focus: There will be periods of relative underperformance (some will be lengthy)

Hedge Fund Strategies

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- Hedge Funds are investment strategies with an absolute return focus that may exhibit low correlation to traditional portfolio risk factors.
- With the growth in mutual fund vehicles, alternative betas, and risk premia, hedge fund strategies have become part of a larger opportunity set often described as marketable alternatives.
- Hedge Funds and other marketable alternative investment strategies can use shorting, leverage, and/or derivatives to:
  - Hedge market beta
  - Exploit relative value opportunities
  - Execute directional market views
- The potential benefits offered to investors are:
  - Increased portfolio diversification
  - Enhanced downside protection
  - Customized objective solutions

Main Hedge Fund Strategies

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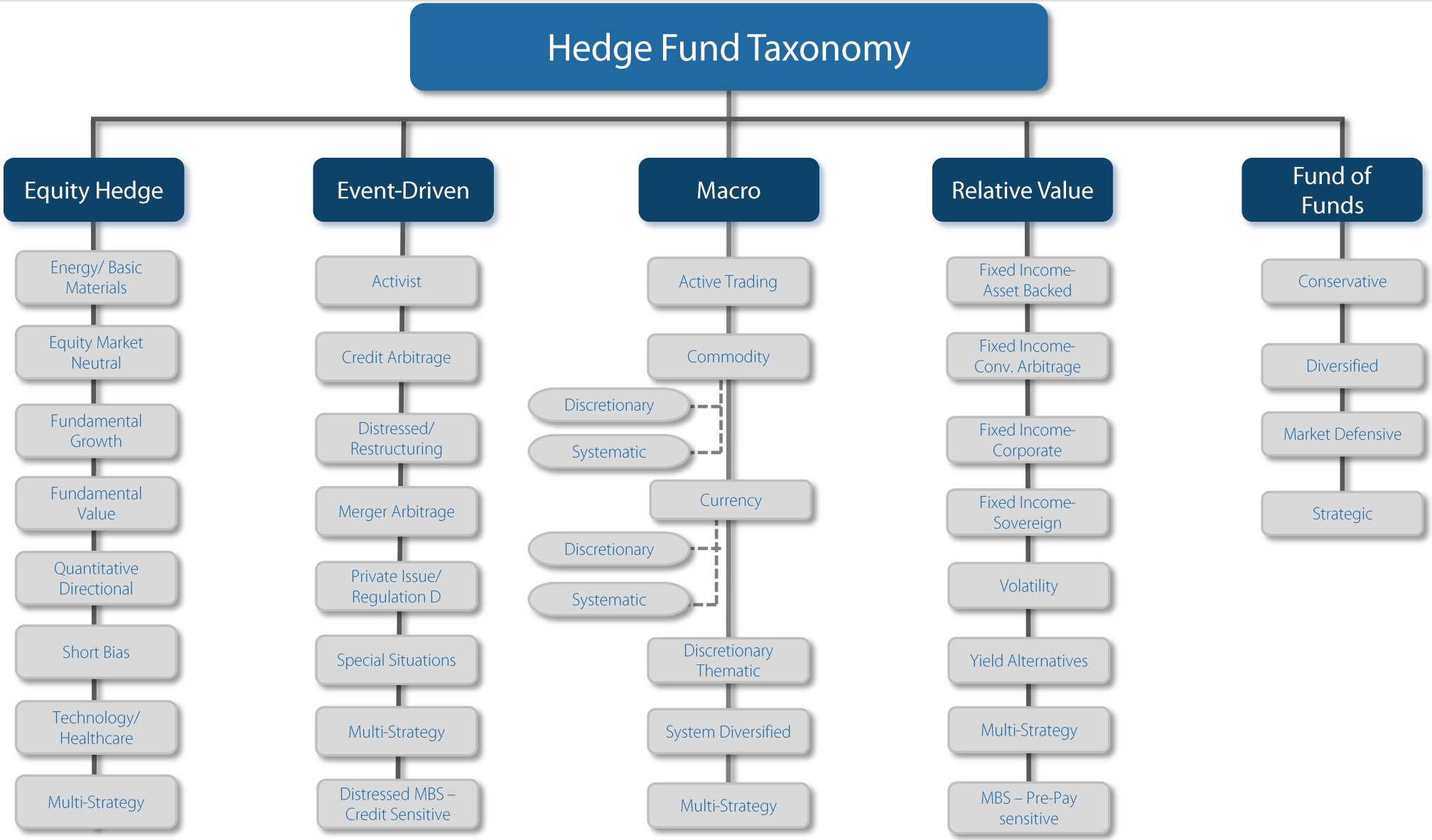

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Hedge Fund Strategies Defined

1. **Equity Hedge** - The most common type of hedge fund strategy today, Equity Hedge (also known as Long/Short Equity) investors buy stocks they believe are undervalued and short-sell stocks that they believe are overvalued.
2. **Event Driven** – Strategies maintain positions in companies currently or prospectively involved in corporate transactions of a wide variety such as mergers, restructurings, shareholder buybacks, etc.
3. **Macro** – Strategies base holdings primarily on the overall economic and political views of various countries, or their macroeconomic principles and can include long and short positions in various equity, fixed income, currency, commodities and futures markets.
4. **Relative Value** - Strategy that seeks to take advantage of price differences between related financial instruments, by simultaneously buying and selling the different securities—thereby allowing investors to potentially profit from the "relative value" of the two.

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What are the risks?

Manager Risk:
failure of key principals to develop stable and complete organizations

Implementation Risk:
failure to specifically implement a specific strategy / risk of strategy risk

Performance Risk:
*failure to achieve stated objectives **net of fees** and permanent impairment of capital*

Operational Risk:
failure of internal controls and procedures

Valuation Risk:
failure of pricing policies and segregation of duties when valuing investments

Liquidity Risk:
inability to redeem capital when desired

Hedge Fund Risks: Liquidity and Leverage

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Institutional investors should think about liquidity in two ways:

- **Own investment in hedge fund**
  - Withdrawal and lock-up periods
- **Hedge fund portfolio investments**
  - Exiting positions in thinly traded securities can prove problematic in the event the market moves quickly
  - Liquidity issues can be exacerbated by the use of **leverage**
  - If credit lines are withdrawn, hedge funds face liquidity issues as managers are forced to sell lightly traded securities
  - 2008 performance is the most recent example of issues caused by liquidity and leverage

Macro/Trend Following

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Trend Following strategies are rules-based systems that identify positive and negative trends in prices across asset classes.

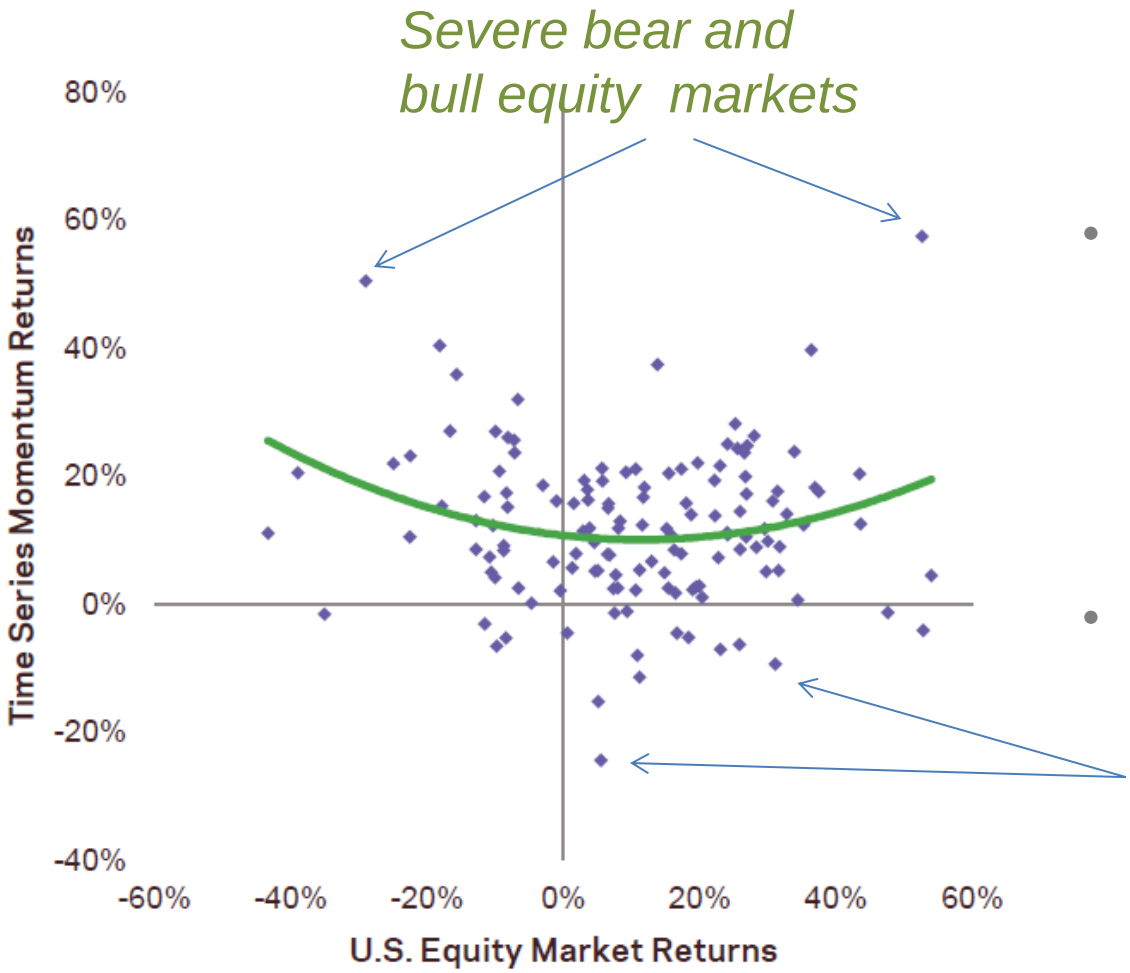
- Rules can be as simple as:
  - If the price is higher than the price a year ago, buy the security
  - If the price is lower than the price a year ago, sell the security
- Behavioral biases and market frictions that cause prices to under-react to good or bad news based on the cognitive biases.

Benefits

- Designed to capture returns from both rising and falling markets
  - In a falling market, trend following managers will benefit as markets become stressed in the wake of a financial crisis.
  - If markets quickly revert, the strategy will produce losses as the trend managers are positioned for a continuation of market trends.
- Low correlation to the US equity and US bond markets

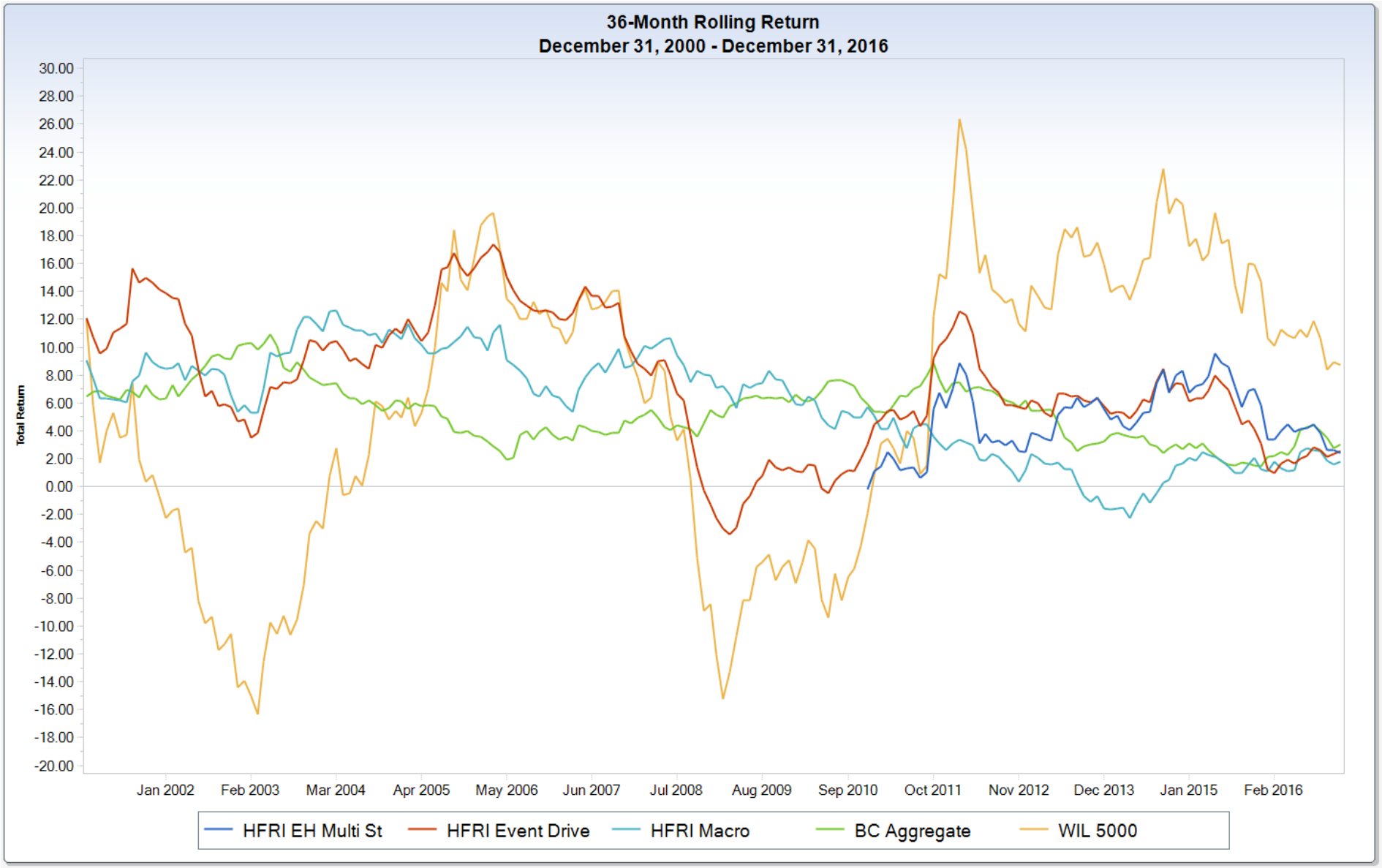
Trend Following Momentum

Annual returns of a simulated time series momentum based strategy versus U.S. Equity Market Returns 1920-2015



- *Trendline tends to be positive in all markets and protects against drawdowns*
- *Outlier returns do exist with material drawdowns for the strategy even when US equities are positive*

Hedge Fund Performance



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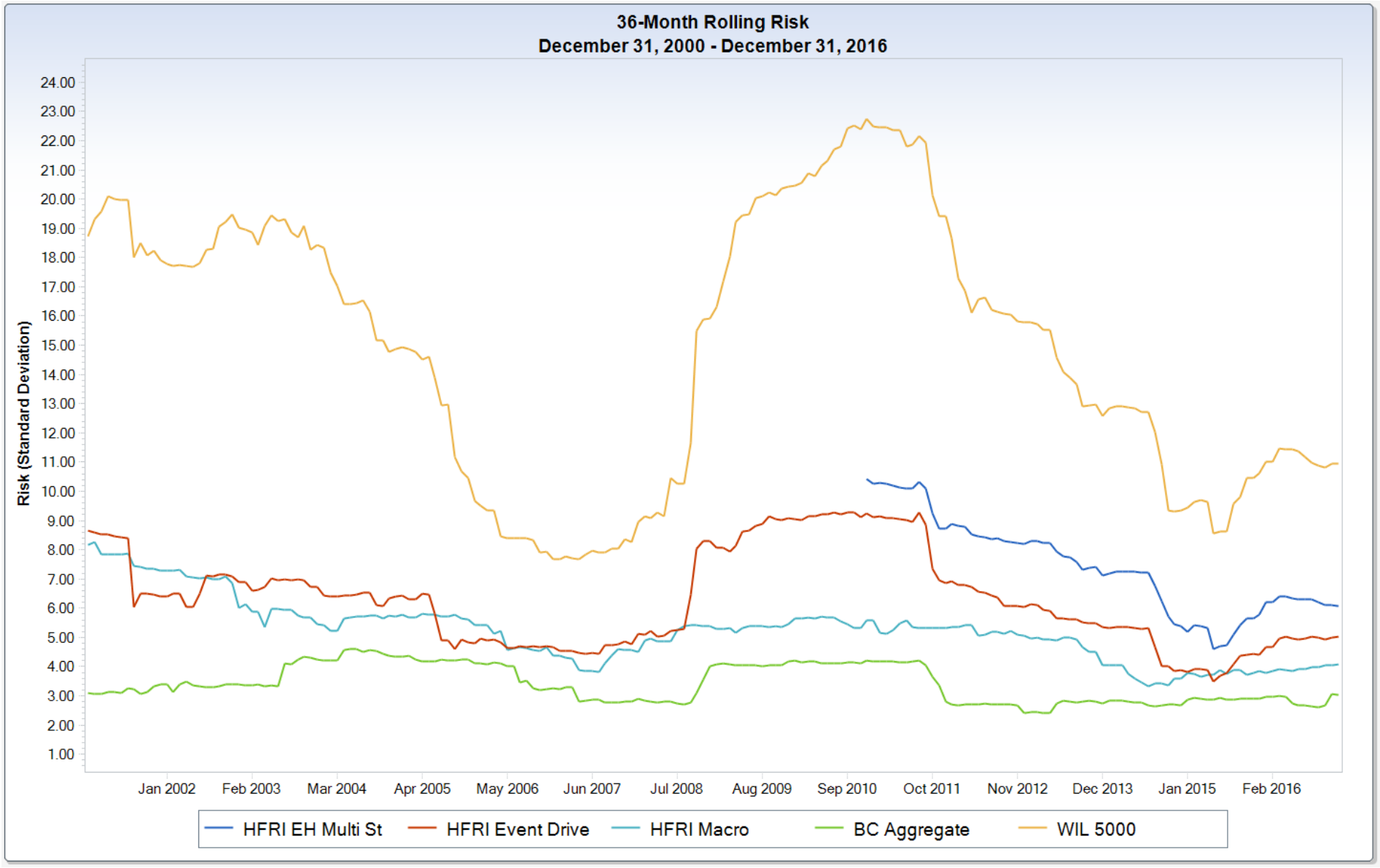

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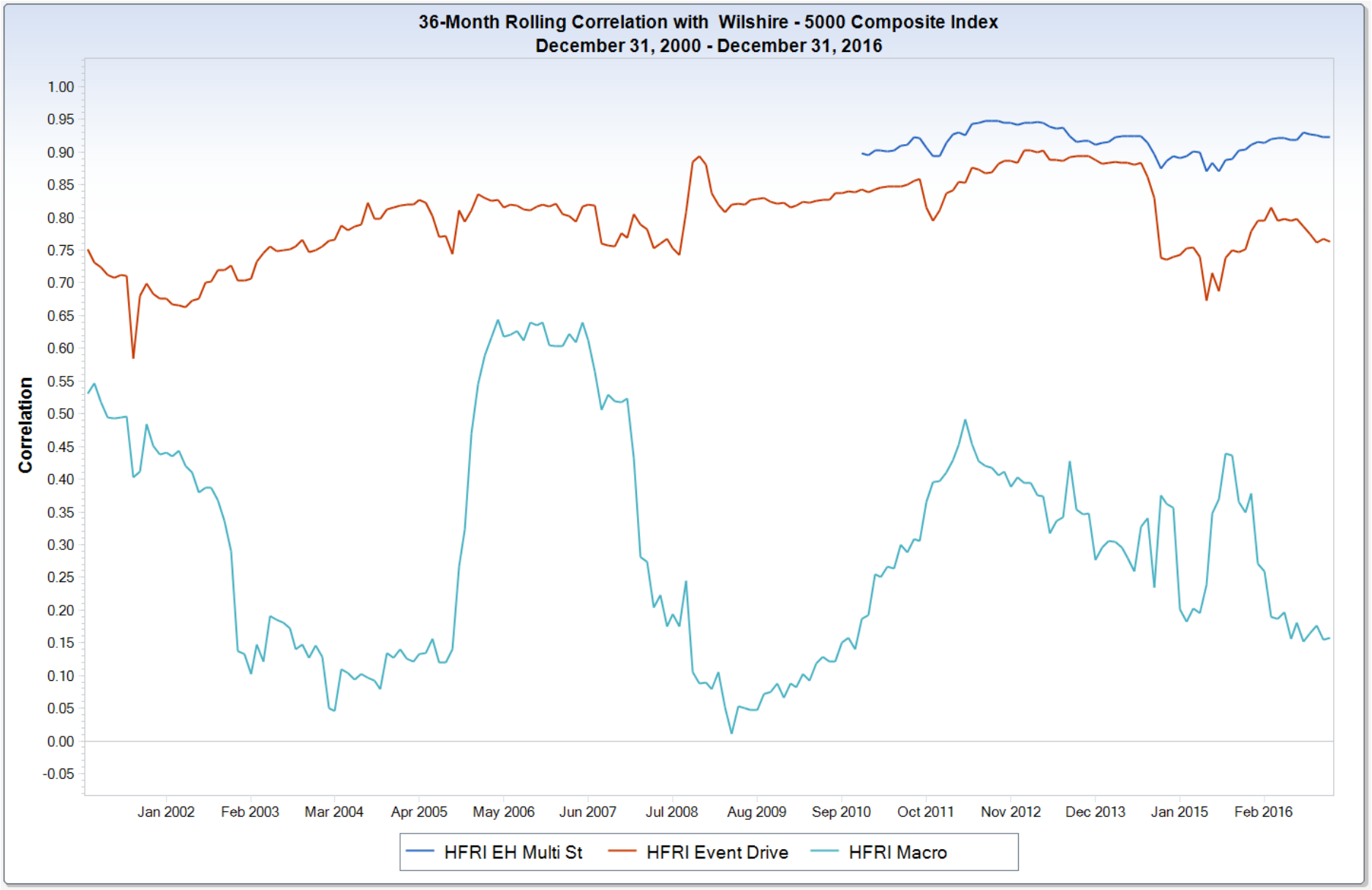

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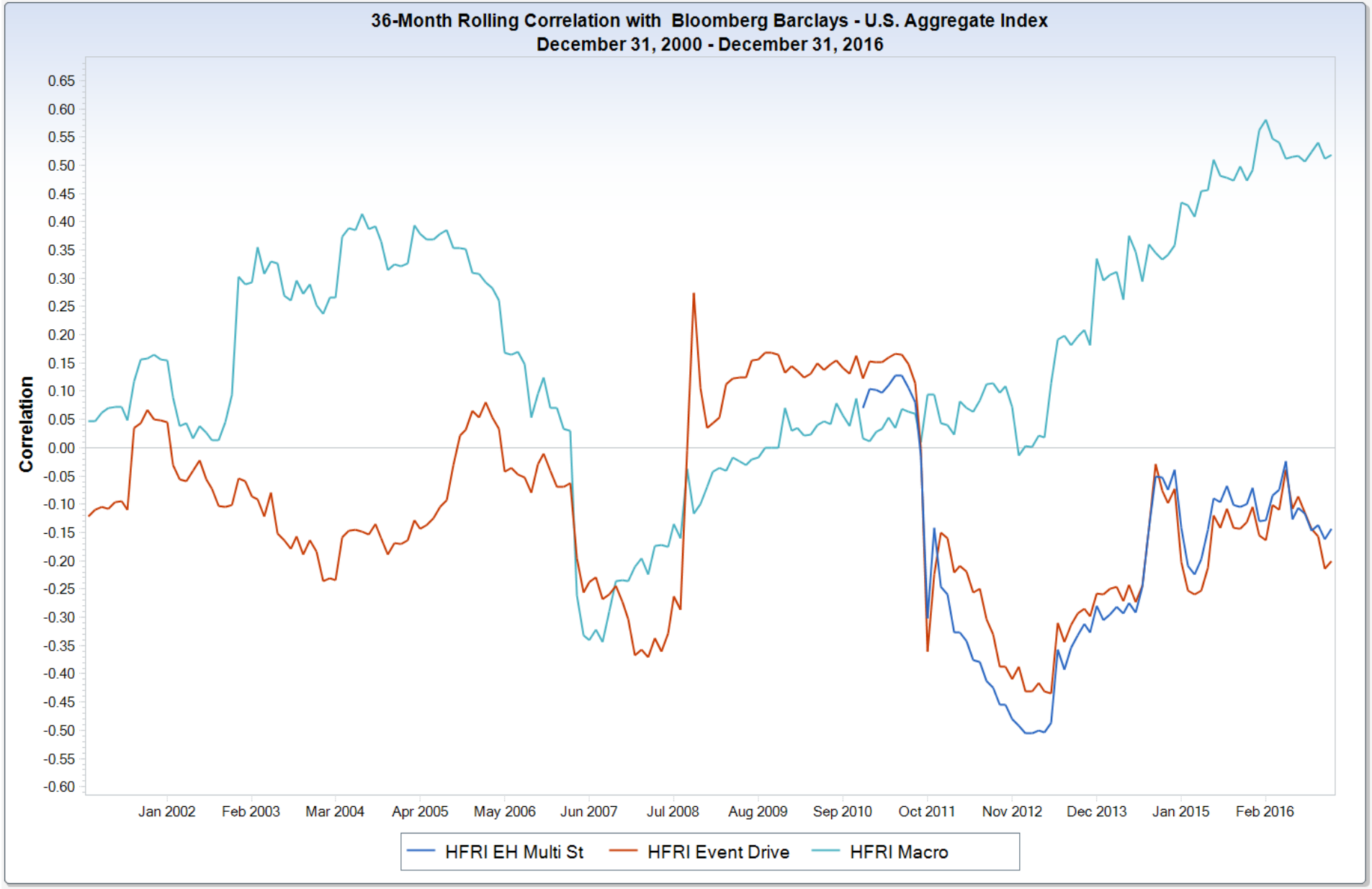

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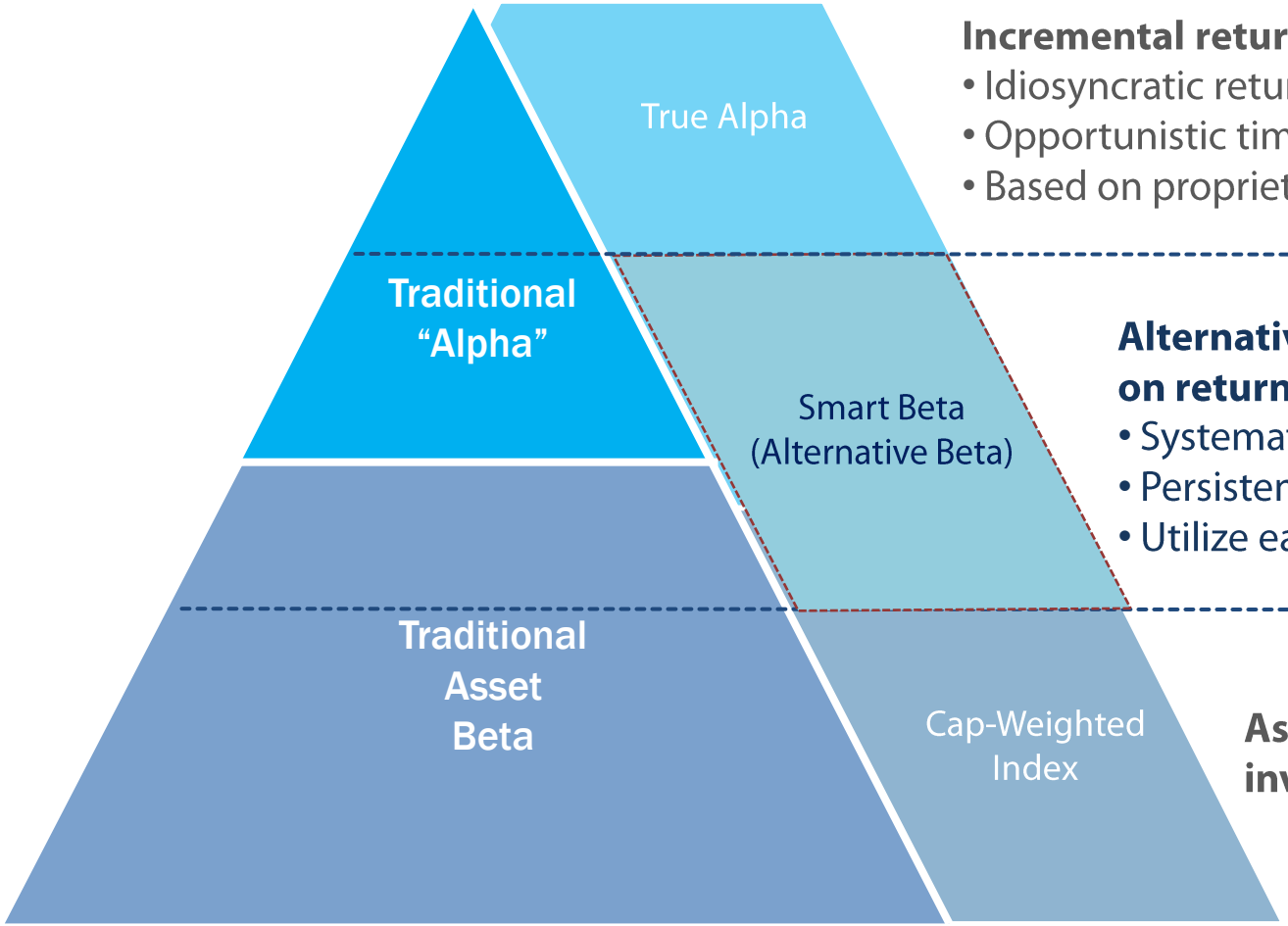
"Traditional" Alpha vs. "True" Alpha



Incremental return from true active management
- Idiosyncratic return through security selection
- Opportunistic timing of market dislocation
- Based on proprietary research / models / insights

Alternative exposure to asset class based on return-driver factors
- Systematic access to desired factors
- Persistent risk premium over long term
- Utilize easily accessible public data

Asset class return / Passive index investment return

Introduction to Risk Premia Strategies

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A 'risk premium' is the expected excess return on a security or portfolio for bearing specific risk

- E.g., equities vs. cash, long bonds vs. short bonds, peso vs. dollar

- Magnitude of risk premia can vary over time, but risk premia neither disappears nor is "arbitraged" away given it is the payoff for exposure to specific risk factors

- Risk premia exist in all asset classes and can be isolated in various ways using widely recognized ratios (e.g., E/P, B/P, yield curve slope) or other metrics which represent measurement of particular risk premia

  - Commonly known risk premia were identified by Fama and French in 1993
    - Size (small vs. big)
    - Style (value vs. growth)

- There may be large draw-downs when risks are realized

Risk Premia (Alternative Beta) Universe

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- Alternative Beta risk premiums are diverse and broadly available across asset classes

Risk Premium	Return Type	Implementation
Value	Convergence	Long undervalued assets vs. short overvalued assets
Carry	Yield	Long high carry instruments vs. short low carry instruments
Momentum	Persistence	Long recent outperformers vs. short recent underperformers
Event	Catalyst	Long assets undergoing event vs. short based beta
Volatility	Premium	Short implied volatility vs. realized volatility
Liquidity	Mean Reversion	Long assets being sold or short assets being bought
Structural	Various	Long or short assets with supply and demand imbalances

Risk Premia and Hedge Funds Comparison

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	Risk Premia	Hedge Funds
Operational considerations	Lower fees, more transparency, less operational risk because accessing the total return of an index, counterparties takes on execution risk	Higher fees, less liquidity, higher risk of operational failures
Ability to customize, use as building blocks, overlays and hedges	A more reliable hedge because of the transparency and systematic nature of the strategies	Can be a good diversifier to traditional investments, but less reliable because of the diversity and complexity of underlying positions and strategies and risk of style drift
Broad range of alternative strategies	Simple strategies, only liquid strategies	Can access illiquidity premiums, less concern about capacity constraints
Access manager skill, adaptive to changing market environment	Not adaptive, need active asset allocation	Can be adaptive, manager skill critical in outperformance
Alpha - generating	Alternative Beta - the strategies themselves can be thought of as an index. Only outperformance is in strategy selection. Can be used to benchmark managers.	Talented managers should outperform risk premia strategies. Access to true alpha-generating strategies.

Conclusion

- Although yields have increased recently, a low expected return environment presents a significant challenge to institutional investors in meeting their financial objectives
- The need to pursue returns versus an interest in avoiding large losses has opened the door for consideration of alternative strategies that have the potential of managing downside risks
  - However, they involve a higher level of complexity and cost
  - Funding circumstances, risk aversions, etc. must ultimately serve as decision factors regarding the suitability of any of these strategies
- These strategies are worth consideration for institutional investors with a greater appetite for more exotic investment approaches as they continue to navigate the current low yield, low expected return environment

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