# BAI - WEBINAR

## Quantitative Investment Strategies (QIS) von Investmentbanken: Eine interessante, aber wenig bekannte Anlagemöglichkeit für institutionelle Anleger

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**Vincent Weber**

- CEO & Gründer von Resonanz Capital, einer spezialisierten Anlageberatungsfirma mit mehr als 5 Mrd. USD Assets under Advisory (AuA)

- Vor der Gründung im Jahr 2019 leitete Vincent Weber das Absolute Return Team bei Prime Capital AG

- Studierte Finanzwesen und Volkswirtschaftslehre am Imperial College London, der Goethe-Universität Frankfurt und der Universität Dauphine in Paris

# Agenda

1. Eröffnungsworte (BAI)

2. Quantitative Investment Strategies (QIS) von Investmentbanken:
Eine interessante, aber wenig bekannte Anlagemöglichkeit für institutionelle Anleger

3. Q&A

# Outstanding Webinars

REPRESENTING ALTERNATIVE INVESTMENTS

**Echte Portfoliodiversifikation durch Alpha-fokussierte Hedgefonds**

- 09. November 2023

**Acceleration Capital als hybride, (semi-) liquide Anlageform**

- 15. November 2023

**Unkorrelierte Prämien: Event Driven Strategien!?**

- 22. November 2023

Hier geht es direkt zu den BAI-Webinaren

# Outstanding Events

## BAI ESG Workshop

- 20. November 2023

## BAI Private Debt Symposium

- 05. März 2024

## BAI Alternative Investor Conference (AIC)

- 22. – 24. April 2024

# **QIS:** Use Cases for Allocators

BAI Webinar

November 2023

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# Section 1

## Introducing Resonanz Capital

# Resonanz Capital

## Company profile

- Resonanz: our **fact-based** response to traditional **hedge fund advisory**
- Our approach is **systematic** and **data-driven**, supported by our innovative **technology** and a correspondingly pronounced **team culture**
- Our analytics platform, **Ensemble®, cuts through the information noise** and enables focused **navigation** through the complexity of the hedge fund industry

15 years
Teamwork

20
People

$6 bn
Assets

# Our Solutions

## Tailored for your state-of-the-art hedge fund program

### Extended Workbench

- Get clear insight into the hedge fund universe, your portfolio, and individual investments through our **Ensemble® analytics platform**
- **Multi-asset** ability enables a coherent view in the context of your overall portfolio
- We relieve your team, **reduce operational risks** and enable **proximity to your investments**

### Strategic Advisory

- **Design** your portfolio within your **SAA's** objectives or on a stand-alone basis.
- **Product agnostic implementation**
- **Governance & investment controlling** at all portfolio levels for the purpose of transparency and efficient decision making

### Investment Management

- **Discretionary management** of absolute return portfolios according to your specifications and guidelines
- **Risk-based approach** to portfolio management with focus on capital preservation
- Focus on **uncorrelated strategies across the liquidity spectrum**

# Section 2
## Why QIS for Hedge Fund Investors?

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# What Are Quantitative Investment Strategies?

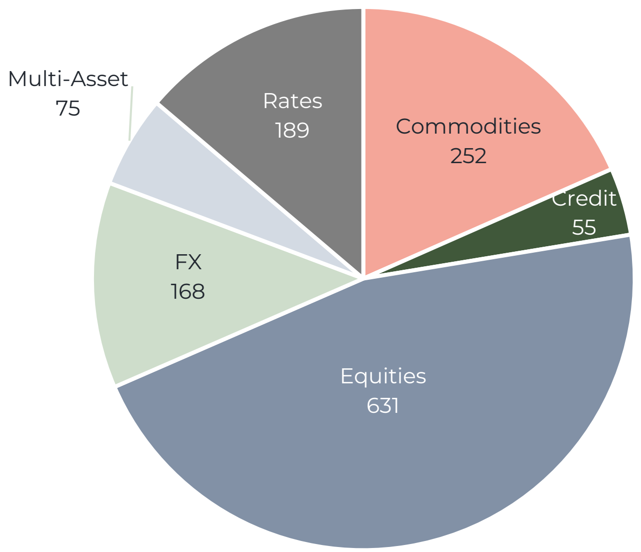
## QIS offer a diversity of strategies and span multiple asset classes

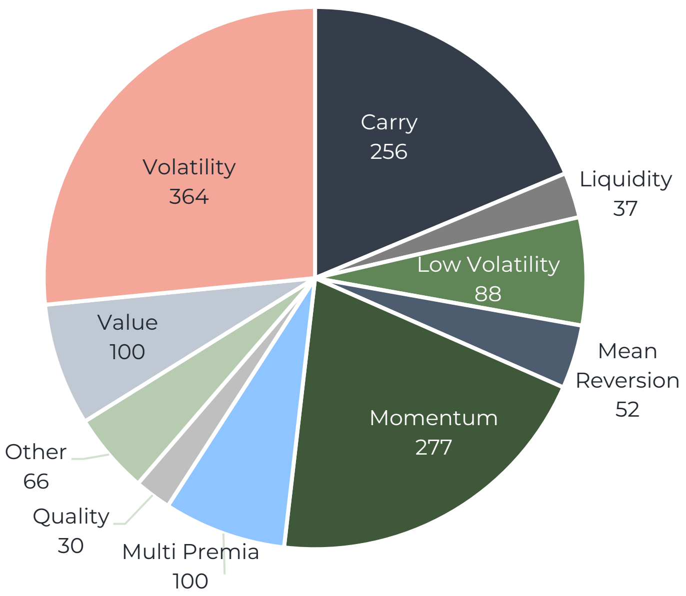
### QIS at a glance

- Quantitative investment strategies (QIS) are **systematic investment strategies**, like those employed at hedge funds, but offered by investment banks
- A growing market, currently well above **$350bn**
- Investors can enter **swaps, notes, derivatives**, etc. on single indices or entire baskets with the investment banks
- QIS are usually accessible in a relatively **cost-efficient** manner, offer **high liquidity** and relatively **high transparency**

### 9 Investment Banks

### ~ 1500 Indices




**QIS offer hedge fund like strategies, wrapped into liquid and cash efficient structures**

# Why Are QIS Helpful For Hedge Fund Investors?

We use QIS in three different ways

$$\underbrace{\mathrm{r}_t^{HF}}_{\text{Nowcasting of Hedge Fund Returns}} = r_t^{rf} + \underbrace{\alpha_t^{HF}}_{\text{Alpha Capture of Hedge Funds}} + \underbrace{\sum_{i=1}^{L} \beta^i r_t^i}_{\text{Risk Measurement}}$$

**QIS may help provide better insight into hedge funds and offer an investment alternative**

# Section 3
## Risk Measurement

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# How Is a Hedge Fund's Risk-Return Profile Driven?

QIS can be used to measure systematic risks of hedge funds

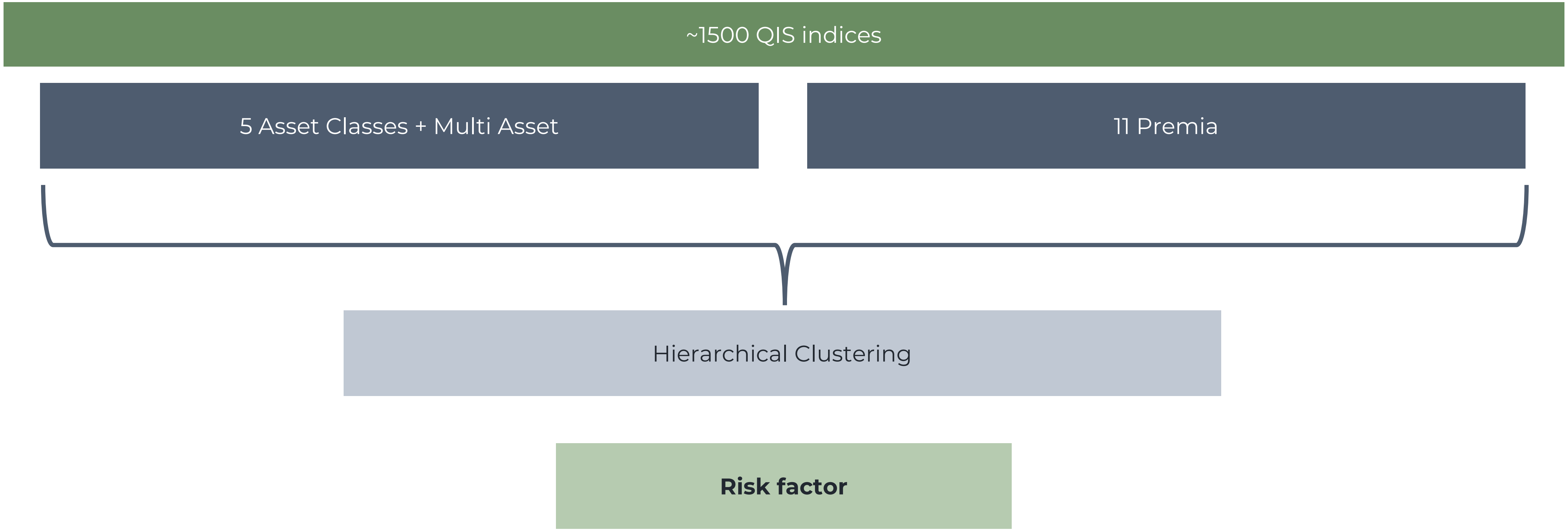
$$r_t^{HF} = r_t^{rf} + \alpha_t^{HF} + \sum_{i=1}^{L} \beta^i r_t^i \equiv \underbrace{\sum_{k=1}^{M} \beta^{alt^k} r_t^{alt^k}}_{\text{Alternative Risk Premiums}} + \underbrace{\sum_{j=1}^{N} \beta^{mrk^j} r_t^{mrk^j}}_{\text{Market Risk Premiums}}$$

| Alternative Risk Premiums | Market Risk Premiums |
| --- | --- |
| • Not easily harvested risk premia and systematic market inefficiencies<br>• "Commoditized" hedge fund strategies | • Classical Risk Premiums such as Equity Risk Premium<br>• Can be harvested efficiently by investing in broad market indices |

**QIS may help identify alternative sources of risk that hedge funds are harvesting**

# How Can Alternative Risk Premiums be Identified?

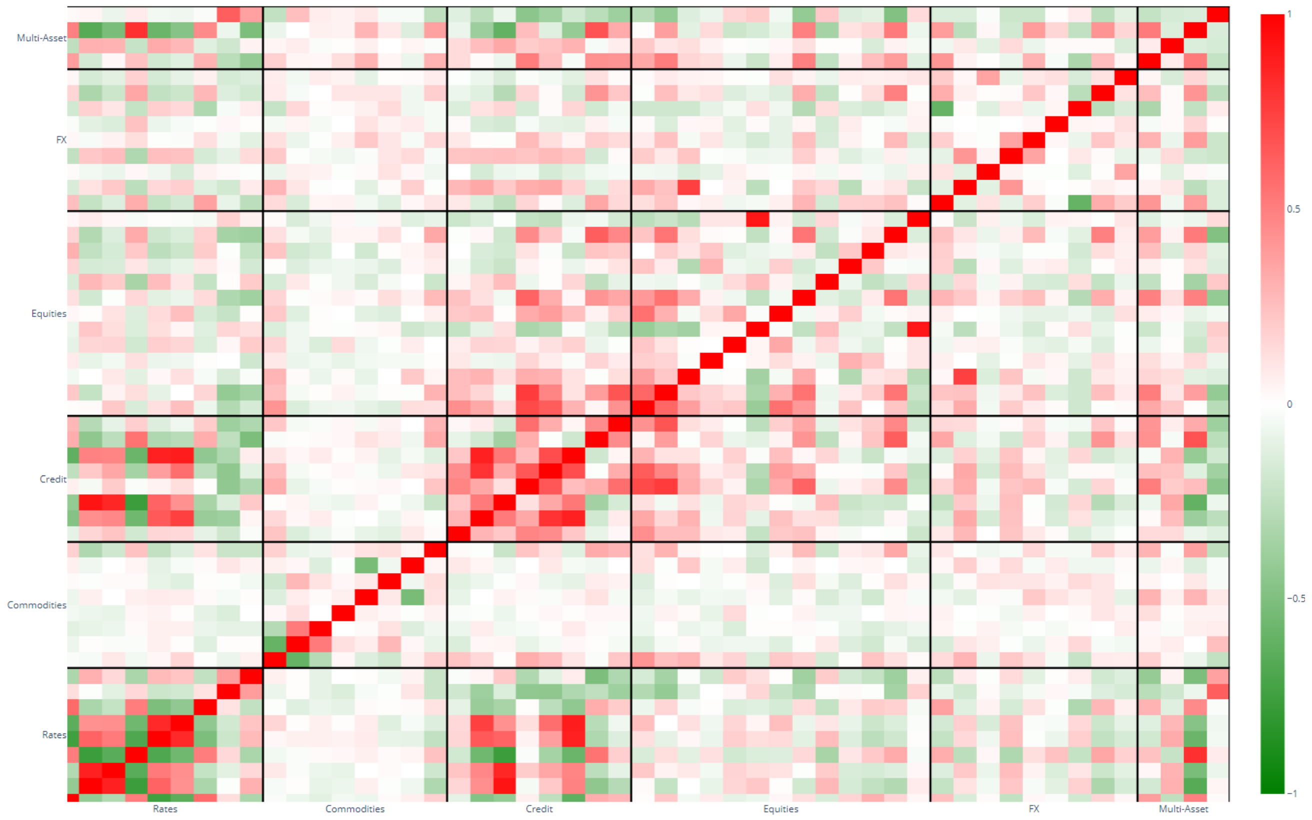
## QIS can be used to identify sources of systematic risk




**QIS are "commoditized" hedge fund strategies that share common risk characteristics**

# Do We Need This Many Alternative Risk Premiums?

## An ideal set of factors would be rather uncorrelated




*1-year rolling correlation as of 30 Sep. 2023*

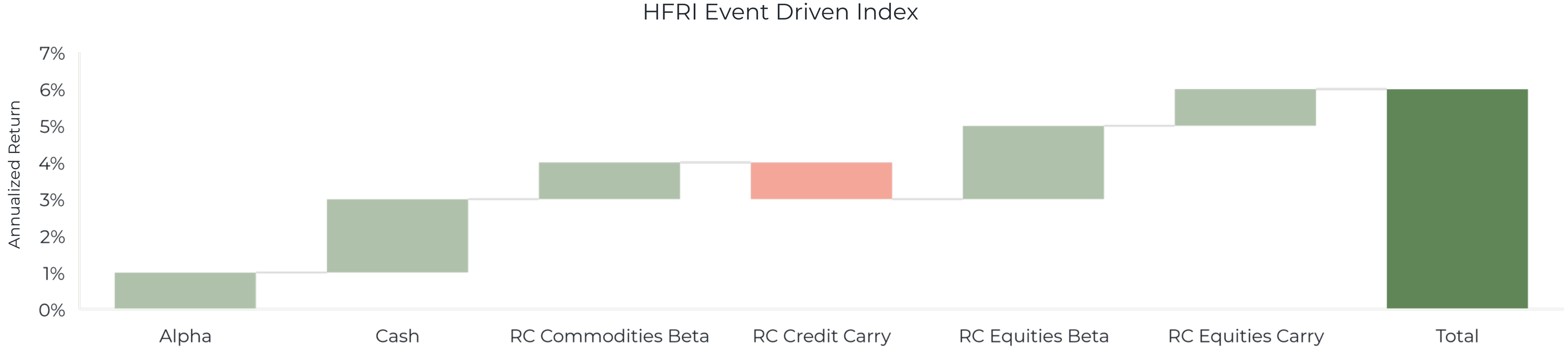
### Risk Factor Universe

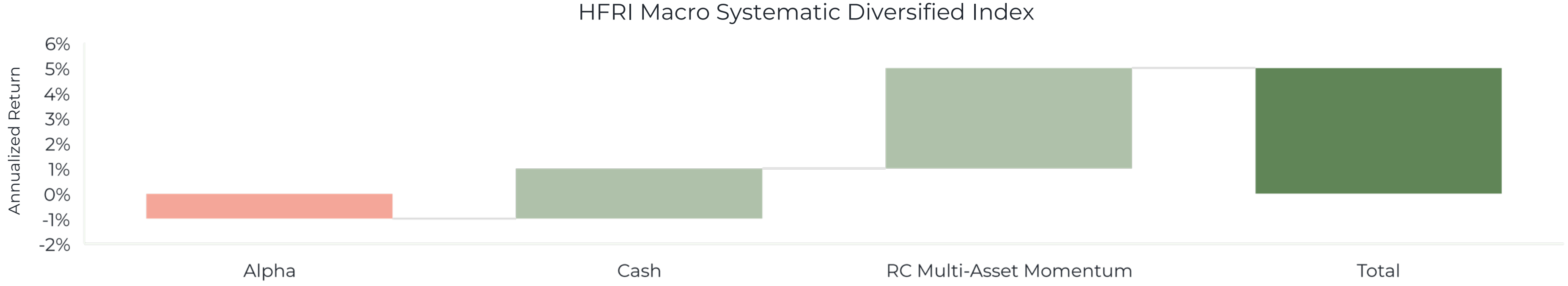
- Most factors for Equities, the least for Multi-Asset
- Carry, Momentum and Low Volatility available for all asset-classes, Event, Size and Quality only for one
- Factors show some correlation within each asset-class group, but are **on average largely orthogonal** (0.02) with the 5% and 95% percentile falling at -0.3 and +0.4

**Most Alternative Risk Premiums have a rather low correlation amongst each other, while traditional market risk factors have much higher correlation amongst each other**

# How Do Alternative Risk Premiums Help?

## Identification most important drivers across a broad set of factors




*5-year estimation period, as of Sep 2023*

**Depending on the hedge fund's strategy, different factors might play a role**

# Section 4

## Nowcasting of Hedge Fund Returns

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# The Plague of Slow Reporting

## Hedge funds report on their performance only with low frequency

$$\underbrace{r_t^{HF} = \alpha_t^{HF}}_{\text{Observable only on low frequency}} + \underbrace{r_\tau^{rf} + \sum_{i=1}^{L} \beta^i r_\tau^i}_{\text{Observable on higher frequency}}$$

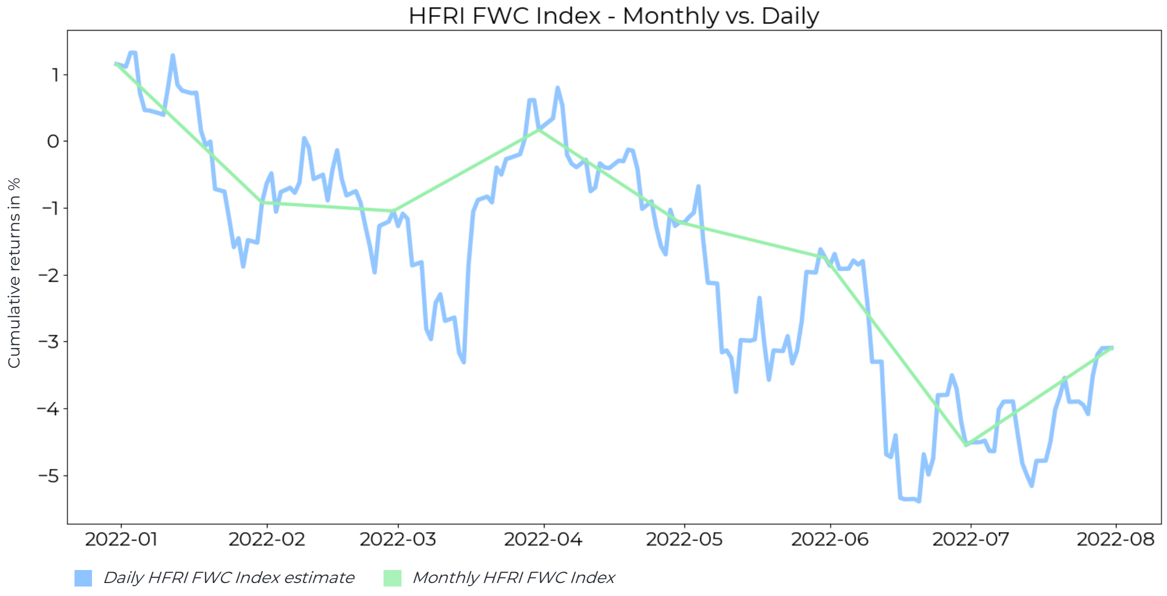
**The Approach**

- Risk premiums and risk-free rate are observable at **daily frequency**
- Hedge fund returns and thus alpha ($\alpha_t^{HF} = r_t^{HF} - \left(r_t^{rf} + \sum_{i=1}^{L} \beta^i r_t^i\right)$) are usually observable only at **low frequency** (monthly, quarterly)
- We make the simplifying assumption that **alpha growths at a constant rate** between two reporting dates such that $r_t^{HF} = \prod_{\tau=1}^{t}\left(1 + \hat{\alpha}^{HF,t} + r_\tau^{rf} + \sum_{i=1}^{L} \beta^i r_\tau^i\right) - 1$

**QIS can help estimate higher frequency returns if you make a few assumptions**

# But What Happened During a Month?

## Method can be applied to any hedge fund or index




*Daily return estimates form 01 Jan – 31 Jul 2022*

### Higer Frequency Hedge Fund Returns

- The method ensures that the observable monthly return and the estimated daily return are **exactly the same** at each month end
- The chart shows that there are many **inter-month movements** that are lost when looking only at monthly returns

**QIS can help gain a better perspective on events that occur over a short period of time**

# How Trustworthy Is The Method?

## The method guarantees a perfect fit from month to month

| Index | Adj. R2 | Ido. Vol | Num. Factors |
|---|---|---|---|
| HFRI Fund Weighted Composite Index | 88.0 | 0.08% | 3 |
| HFRI Relative Value Total Index | 88.1 | 0.07% | 3 |
| HFRI EH Equity Market Neutral Index | 52.7 | 0.06% | 3 |
| HFRI Event Driven Total Index | 87.9 | 0.10% | 4 |
| HFRI Equity Hedge Total Index | 90.0 | 0.10% | 3 |
| HFRI Macro Systematic Diversified Index | 69.9 | 1.20% | 1 |

*Model fit over 3-year period. As of 31 Jul 2022*

### Model fit

- For most indices we find R2 to be close to 90%
- The model shows a lower fit for **CTAs** and **Equity Market Neutral** managers
- **Idiosyncratic volatility**, that is alpha fluctuations, is in most cases **low**
- In most cases more than one factor is needed to describe the return stream

**Relatively good fit for a broad set of funds**

# Section 5
## Alpha Capture of Multi-Manager Hedge Funds

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# Why Can We Use QIS for Hedge Fund Alpha Capture?

## Alpha may be driven by different aspects

$$\mathrm{r}_t^{HF} = r_t^{rf} + \underbrace{\alpha_t^{HF}} + \sum_{i=1}^{L} \beta^i r_t^i$$

$$\underbrace{\alpha^{HF}} + \underbrace{\sum_{j=1}^{N+M} \left(\beta_t^j - \bar{\beta}^j\right) r_t^j}$$

**Selection Alpha**

- Alpha by selection of outperforming securities as compared to the broader market

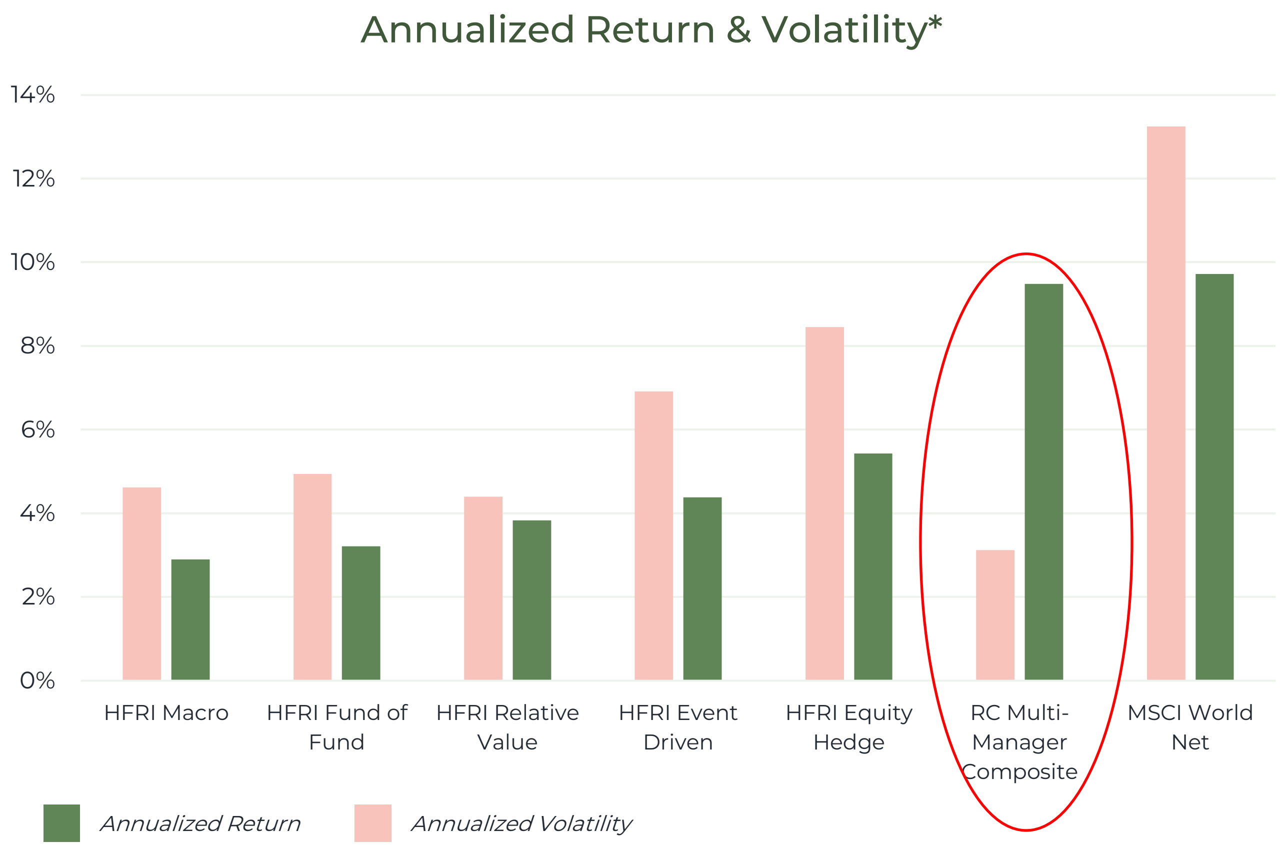
**Timing Alpha**

- Alpha by entering and exiting classical market premiums and alternative premiums at optimal times

**QIS can be used for timing hedge fund strategies and alternative premiums**

# Which Hedge Fund's Alpha Should We Capture?

## Multi-manager hedge funds have offered a very attractive risk/return profile in the past




**Sample period: June 2013 to June 2023. RC Multi-Manager Composite represents an equally weighted (fund weighted) composite of multi-manager hedge funds that Resonanz Capital tracks*

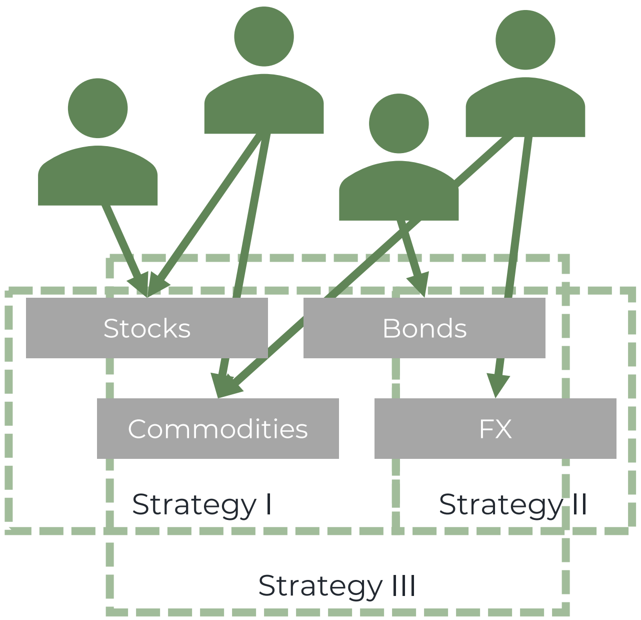
### Multi-Manager Universe

- **Multi-manager hedge funds have offered equity like return with only a fraction of the equity risk over the last 10 years**
- **Understanding the value drivers** is key to forming expectations about the future risk-return profile of multi-manager funds
- And ultimately **allows adoption of a similar investment approach** in other asset classes/instruments

# But What Is a Multi-Manager Hedge Fund?

## Multi-manager funds appoint many portfolio managers, but may vary in their setup

### Multi-Manager Hedge Fund




### Multi-Manager Hedge Fund in a Nutshell

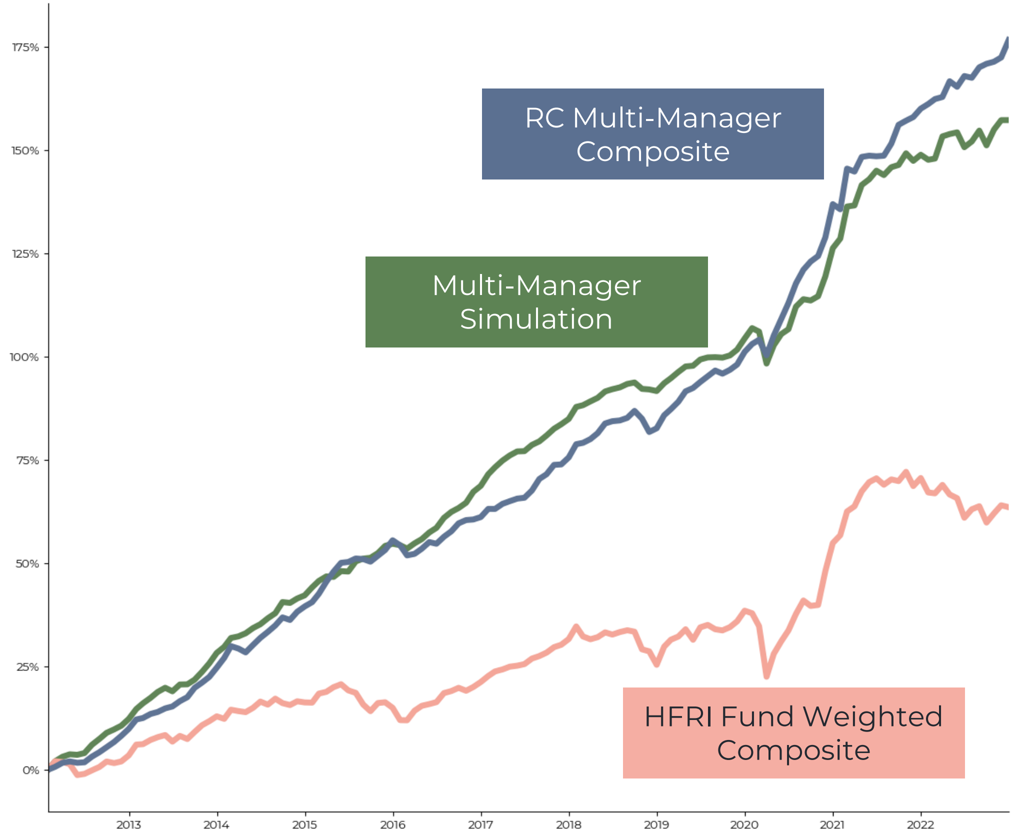
- Hedge fund entrusts single portfolio managers (PM) with capital to run his/her **own book on behalf of the fund**
- Typically, **shared resources** on fund level such as centralized risk management, execution and administration
- With constant emergence of new players numerous **variations in the investment approach** are observed:

| PM | Risk Management | Strategy Breadth |
|---|---|---|
| Directly employed PM or externally appointed PM via MA | Single risk limits for PMs? Additional hedging on fund/book level? | Single investment strategy or Multi-Strategy? |

| Working Env. | Cost Structure | Ramp up / Scaling |
|---|---|---|
| Collaborative or siloed working environment? | Are costs on PM level passed trough or does the fund charge a mgt. fee? | Single PM model or single PM with 1-2 analysts or a mini business unit? |

# How Can We Identify The Key Return Drivers?

## We simulate a multi-manager hedge fund in a nutshell to conduct a natural experiment




*Sample period: Jan 2012 to Dec 2022. RC Multi-Manager Composite represents an equally weighted (fund weighted) composite of multi-manager hedge funds that Resonanz Capital tracks*

### Simulation Approach

- **Simulation of a multi-manager fund** by utilizing data of **single hedge funds**
- **Incorporation of explicit multi-manager features** such as PM individual risk limits
- **Similar risk return profile** with a **Sharpe Ratio of 2.5 vs. 2.7** for the RC Multi-Manager Composite

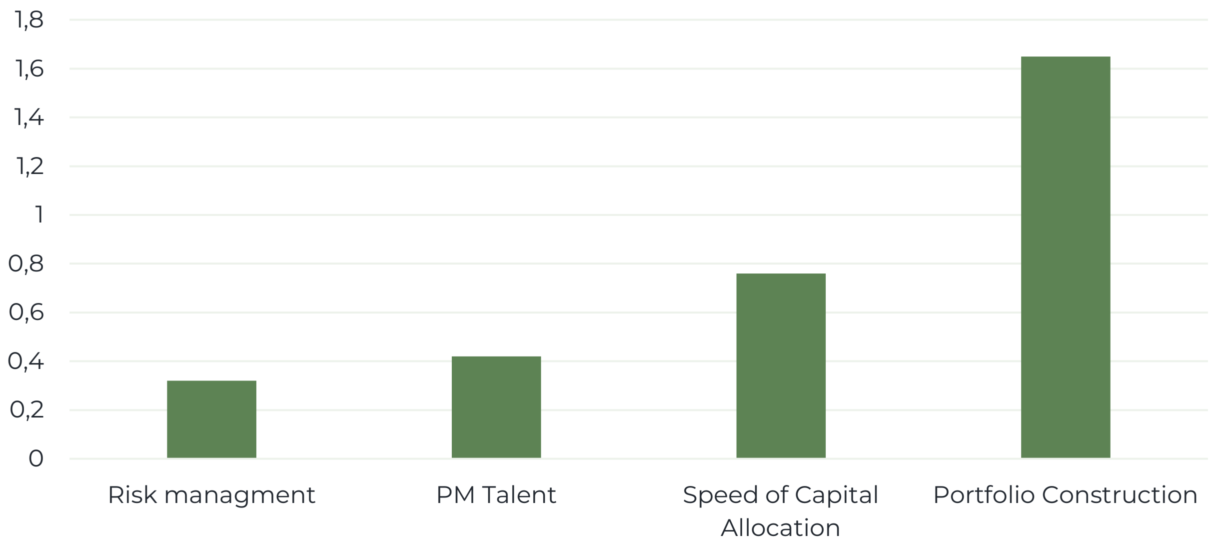
| | Ann. Ret | Ann. StD | SR | Max. DD |
|---|---|---|---|---|
| HFRI FWC | 4.5% | 5.8% | 0.6 | -11.6% |
| RC Multi-Manager Composite | 9.7% | 3.0% | 2.7 | -2.7% |
| Multi-Manager Simulation | 9.0% | 3.0% | 2.5 | -4.2% |

Analysis of the **impact of PM talent, risk management, speed of capital allocation,** and **portfolio construction**

# Summing up the Value Drivers

## Risk-return profile driven by multiple aspects

### Potential Impact on Sharpe Ratio*




*Sample period: Jan 2012 to Dec 2022. Difference in Sharpe Ratio between various models with resection and the baseline model. Risk Management: no stop loss, PM Talent: exclude top 50% of hedge fund managers every month, Speed of Capital Allocation: rebalance only annually, Portfolio Construction: invest in only one single hedge fund strategy*

### Different Ways of Portfolio Construction

- **Portfolio Construction** and the **Speed of Capital allocation are the strongest drivers of value**
- **Talent plays a less important role** than commonly assumed
- Risk management is difficult to model given the data, and results displayed here should be seen as a lower bound

**How can we apply these insights to an investment approach to capture the alpha?**

# Section 6

## QIS as a Liquid Alternative

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# Applying the Multi-Manager Investment Approach to QIS

## We implement the same elements that drive Multi-Manager Alpha

~1500 QIS indices

### Identification

- Each month, Identify the **best performing QIS** indices based on rolling **Sharpe Ratio**
- **Exclude non-live** traded indices each month
- Apply volatility scaling to make single indices better comparable

### Portfolio Construction

- Use all invested and identified candidate indices at the end of each month to create **a Sharpe ratio optimized** portfolio.
- Limit the maximum position size to 10% of risk capital
- Scale entire portfolio to a vol target

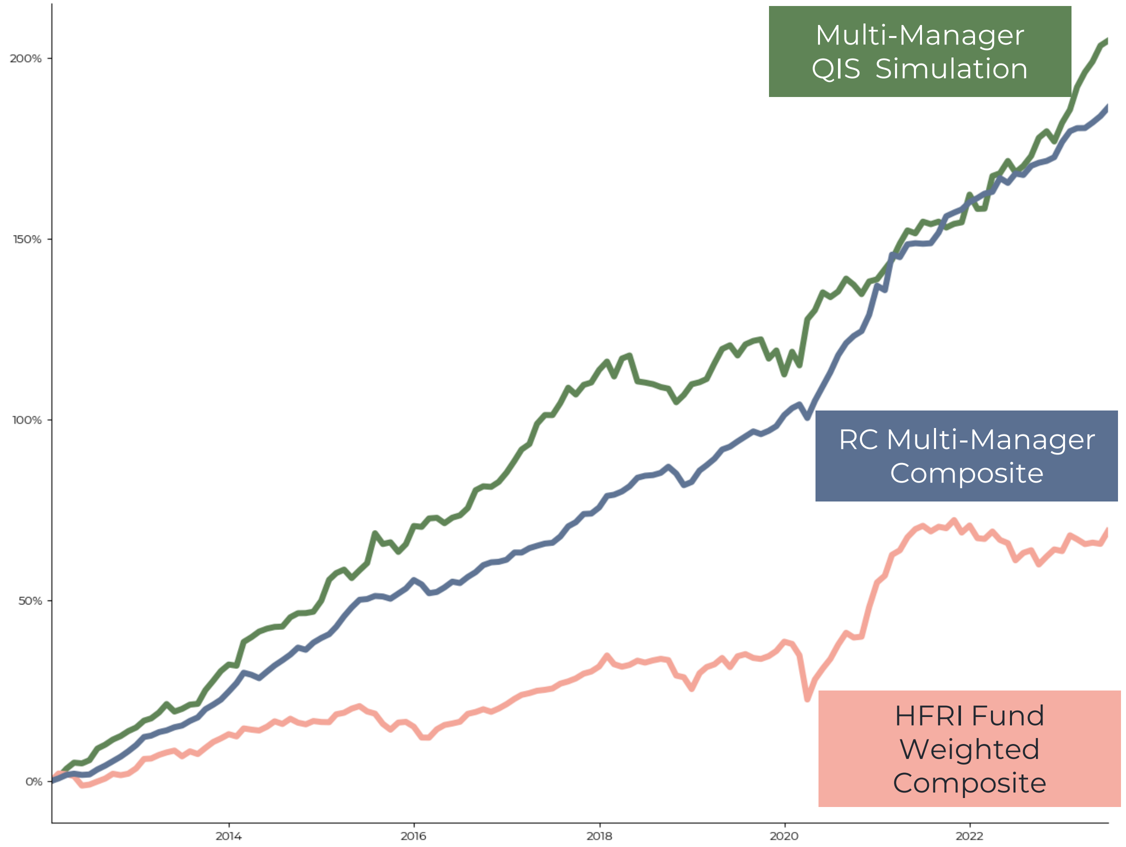
### Risk Management

- Assign individual **stop losses** to each QIS index
- If drawdown exceeds a **2x sigma move** at the close of day t, we exit that position at the close of day **t+2** and **blacklist** for future investments within the next 18 month

**Given the liquidity, the multi-manager investment approach can be applied to QIS**

# Simulation Results In a Nutshell

## The multi-manager approach can be applied to any liquid hedge-fund-like investment




### QIS as potential alternative

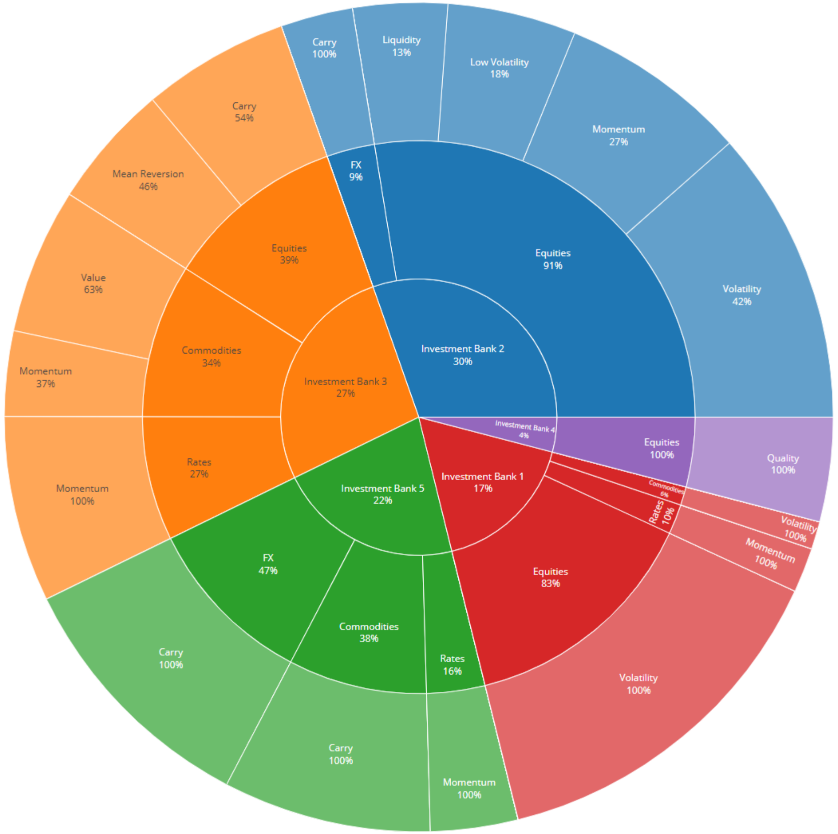
- The QIS Simulation comes at **similar annualized return**, but slightly **higher volatility** than the RC Multi-Manager Composite
- **Risk-return profile quite attractive** for a highly liquid strategy with a Sharpe Ratio of 1.7 and downside protection with max. drawdown of -6%
- We find that the **correlation** to the RC Multi-Manager Composite to be rather **low**

| | **Ann. Ret** | **Ann. StD** | **SR** | **Max. DD** |
|---|---|---|---|---|
| HFRI FWC | 4.5% | 5.8% | 0.6 | -11.6% |
| RC Multi-Manager Composite | 9.7% | 3.0% | 2.7 | -2.7% |
| Multi-Manager QIS Simulation | 10.3% | 5.0% | 1.7 | -5.9% |

**The QIS simulation offered an attractive but different risk-return profile than the RC Multi-Manager Composite and could be an interesting approach for investors willing to adopt a more active investment style**

# How Would a Portfolio Look Like?

## Balanced portfolio across providers and styles




*QIS Multi-Strategy Portfolio composition as of June 2023. Grouped by providing investment bank, asset-class, and strategy group*

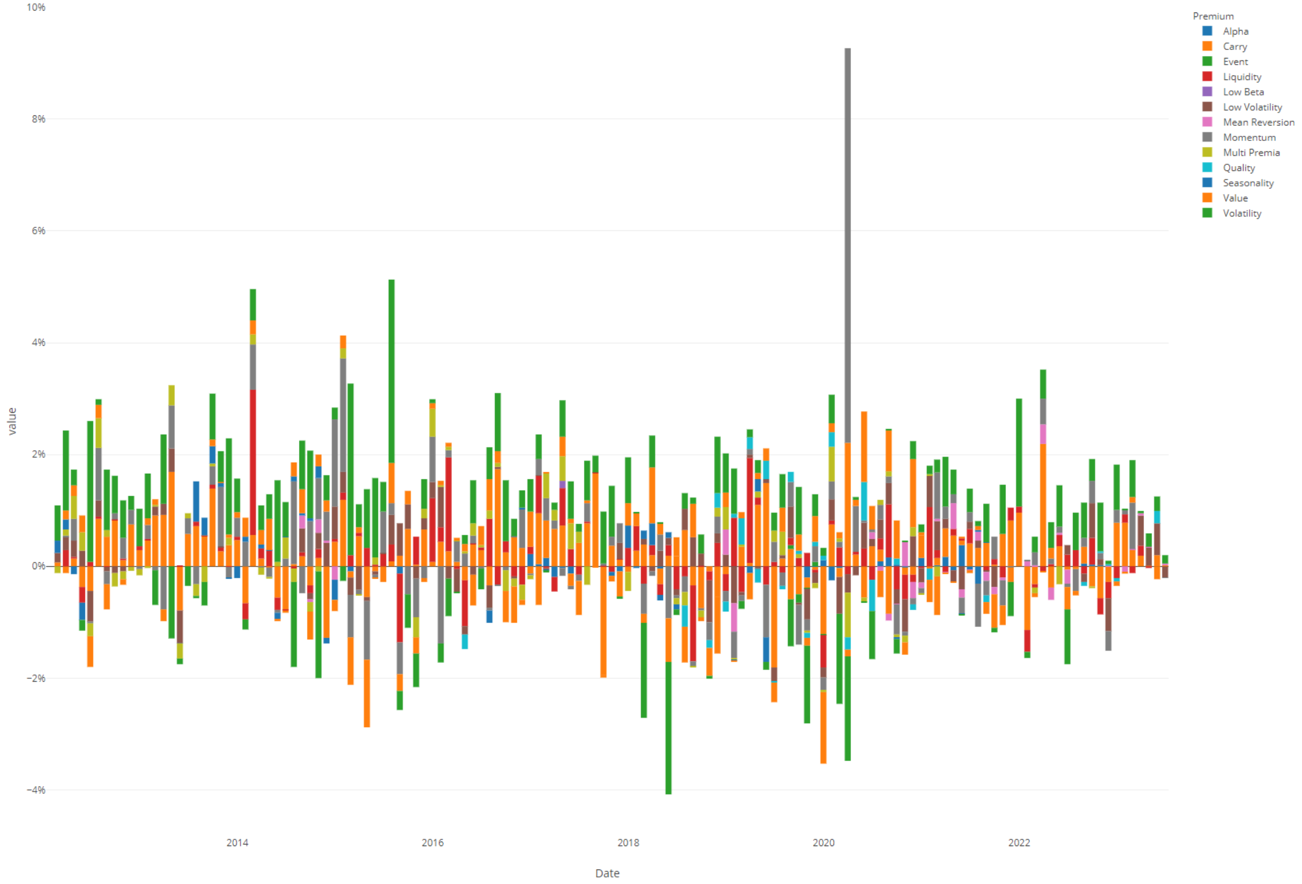
### QIS portfolio composition

- The simulation invests on average in **33 different indices** each month and has a turnover of 5x
- **Diversification across providers** provides a key benefit for the simulation
- We find that most providers provide an edge either on asset-class or style basis
- The simulation favors indices from 3-4 providers. Over the entire simulation period investment with **4 banks would resemble ca. 95% of all investments**

**Entering business relation with only a few investment banks might be sufficient for a well diversified portfolio**

# What Is Driving The Returns of The Simulation?

## The multi-manager approach can be applied to any liquid hedge-fund-like investment




### Return Drivers

- We find positive and negative contribution in most month
- The simulation invest most consistently in Carry, Liquidity, Momentum, and Volatility styles
- Event and Low Beta styles are the least frequently invested

**The QIS simulation profits from a dynamic multi-strategy approach**

# Conclusion

- QIS are offered by many investment banks and include a **variety of asset classes, styles** and **regions**

- Hedge fund investors may be interested in QIS for three reasons:

    1. **Benchmarking** a fund and measuring its risk
    2. To get **timely estimates** of a fund's performance
    3. As an **alternative investment** vehicle

- QIS offer a broad and **largely orthogonal** range of return streams to **efficiently benchmark** funds

- QIS offer **high liquidity** and can therefore be used to provide insights into a **fund's daily performance**.

- Given the strategy breath and high liquidity, QIS can be used for an **investment approach** similar to that of **multi-managers hedge funds**, provided that investors  are willing to take a more **active trading approach.**

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