



Edhec-Risk
Asset Management Research

Edhec Hedge Fund Days 2006

New Requirements in Terms of FoHF Reporting, Performance & Risk Measurement

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Foreword

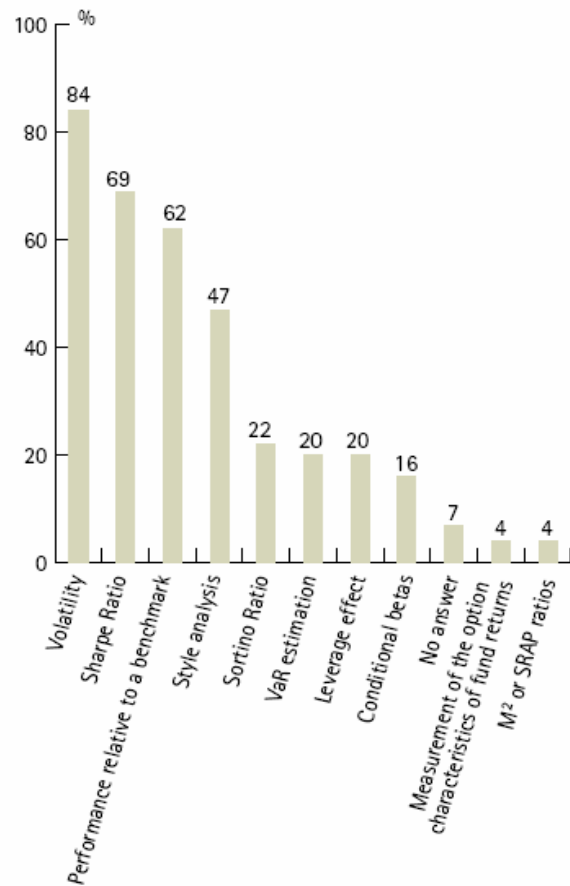
- The massive arrival of institutional investors and the diversity of the risk profiles of final investors has required an in-depth examination of the management practices in the alternative universe, highlighting risk control in particular.
- The initial work that aimed to rationalize and standardize these management practices was carried out under the impetus of the Investor Risk Committee (IRC), set up by the International Association of Financial Engineers.

Foreword

- This work is all the more important in that risk-taking and control lie at the very heart of alternative management. Correct assessment and rigorous monitoring of risks are prerequisites for a hedge fund to function well.
- It is indeed vital for investors to ensure that the funds in which they have invested or in which they wish to invest (again) have adequate control over the risks being run.
- However, investors are rarely in a position to implement satisfactory risk monitoring.

Foreword

Which indicators and information do European FoHF use for reporting to their clients?



- The main reason relates to the low level of information generally provided by hedge funds.
- A study carried out recently by Edhec (2003) shows that:
 - Multimangers favour mean/variance-based reports rather than reporting on all the moments of return distribution.
 - Volatility is considered by 84% of multimangers to be the major concern of their clients. But this concern does not result in information on the diversification qualities of FoHF. Negative outliers are rarely measured and documented.

Foreword

- The inadequacies of the monthly activity reports published by FoHFs do not stop there.
- Many studies have posed the question of the relative performance of hedge funds compared with traditional asset classes ⇒ Researchers have concluded that there was conditional and unconditional outperformance from HF strategies.
- On the basis of this observation, they have tried to highlight the eventual persistence of HF outperformance ⇒ No study has been able to produce tangible proof beyond a 6-month horizon, but some have underlined the stability of the funds' risk profile*.

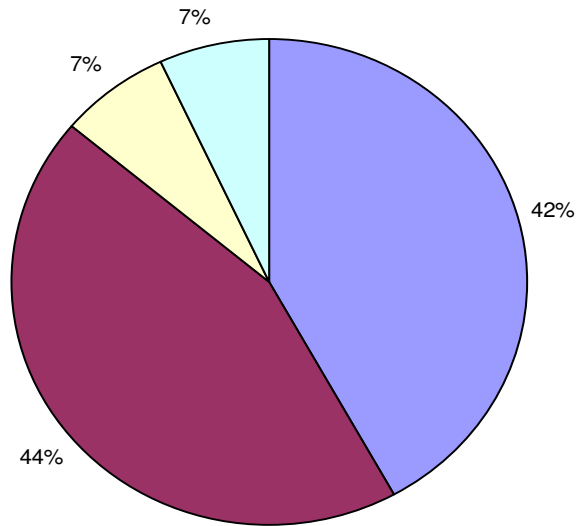
*Kat and Menexe (2003), Mozes and Herzberg (2003)

Foreword

- Their findings thereby justify the investors' transfer of interest from the alphas (i.e. absolute performance logic) to the betas (i.e. diversification logic).
- To adapt to this evolution, multimangers have offered investors:
 - FoHFs that are specialised by strategy and,
 - FoHFs that provide diversification objectives.

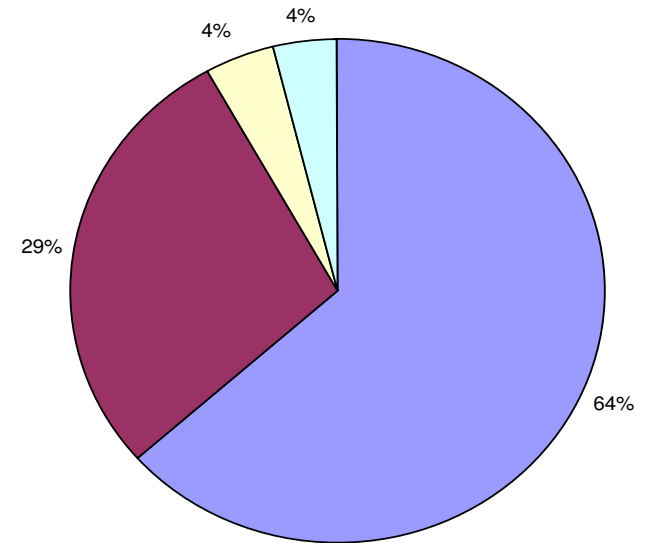
Foreword

Do you offer FoHFs with specific behaviours or diversification objectives in relation to other asset classes?



■ Yes ■ No ■ No, but we will soon ■ No answer

Do you offer FoHF or pure funds by strategy?



■ Yes ■ No ■ No, but we will soon ■ No answer

Source: Edhec European Alternative
Multimanagement Practices Survey, 2003

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Foreword

- Unfortunately, FoHFs' reports do not fully meet the new needs of investors: e.g. the respondents to the Edhec survey* (2003) do not provide the exposure of their funds to the major risk factors, and few of them - 20% of respondents - give information on the leverage effect.
- This is in contradiction with the fact that 95% of the FoHFs consider that the quality of reporting and of risk control is the second most important criterion when they select a fund.

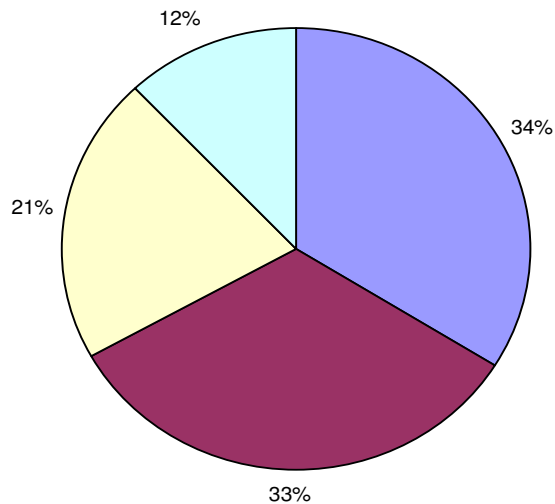
*Edhec European Alternative Multimangement Practices Survey, 2003

Content of FoHF Reports

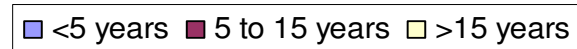
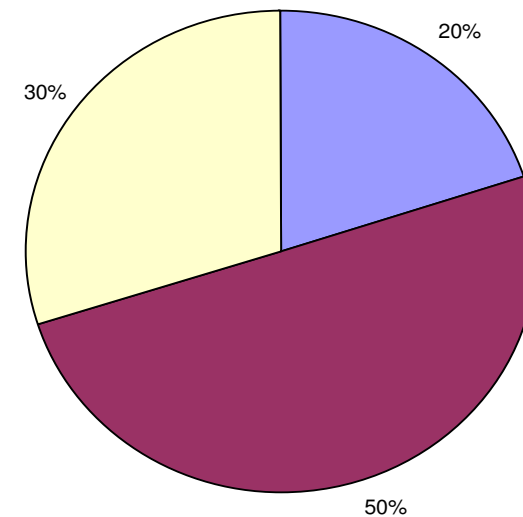
Sentiments and Practices of Market Participants

- Analysis of the insightful comments and suggestions received from 98 professionals in 2004 (FoHF managers [61%] and investors [39%] representing \$1.1 trillion AUM.)
- Profile of the respondents:

Profile of the Managers
Average Size



Profile of the Managers
Experience in the Investment Field

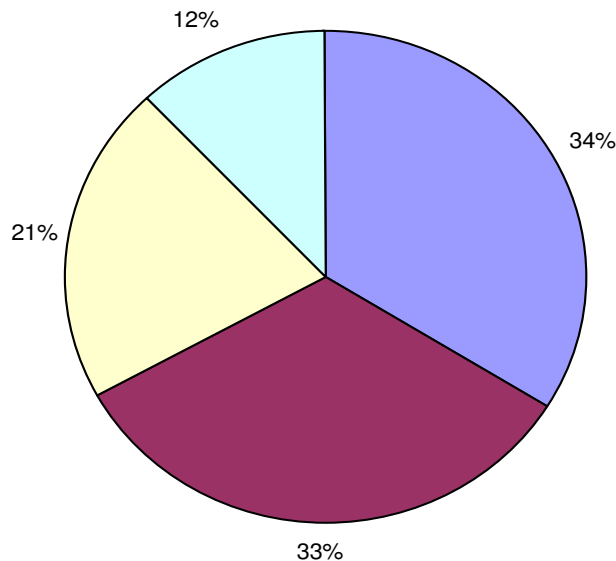


Content of FoHF Reports

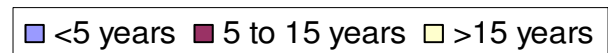
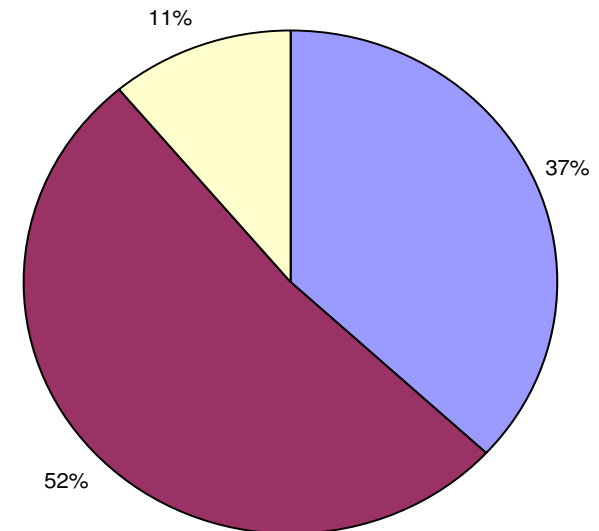
Sentiments and Practices of Market Participants

- Profile of respondents (cont'):

Profile of the Investors
Average Size



Profile of the Investors
Experience in the Investment Field



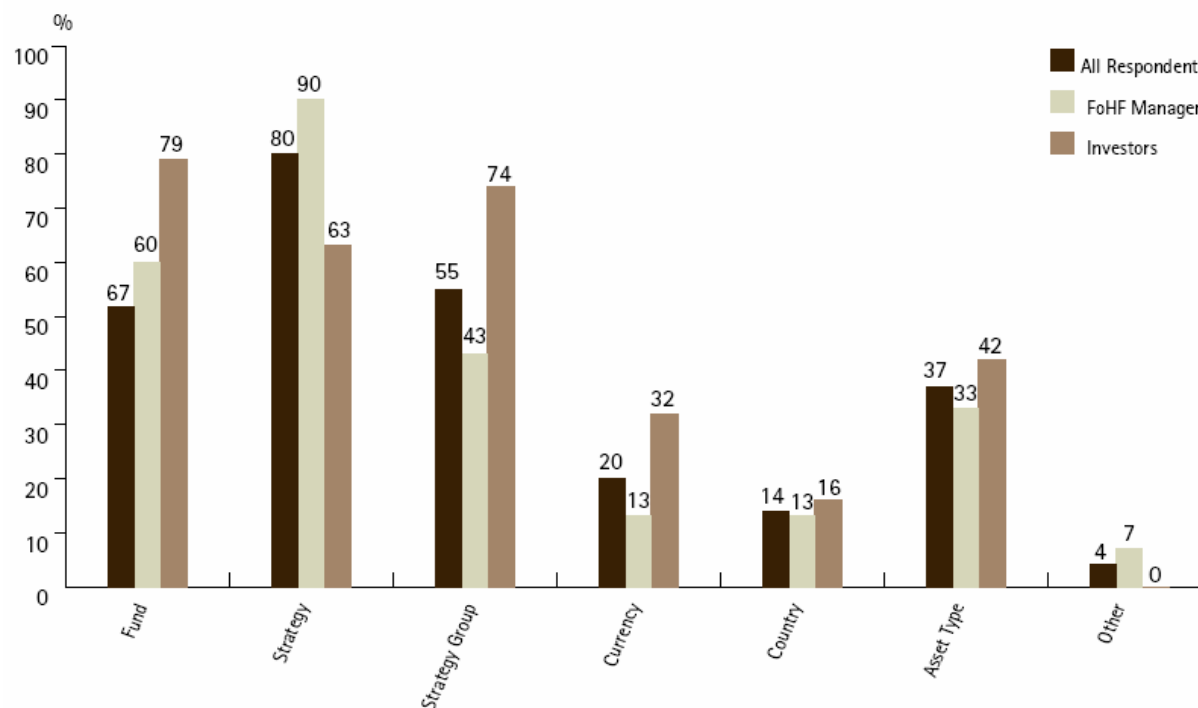
Content of FoHF Reports

Sentiments and Practices of Market Participants

Granularity and Frequency

- A large majority of market participants (67%) consider that the monthly activity reports can account for most of the issues relating to the risk and return dimensions.
- They ask for reports including principally 3 levels of aggregation: strategy group, strategy, and fund.

How should information ideally be aggregated in the monthly activity report?



Content of FoHF Reports

Sentiments and Practices of Market Participants

Granularity and Frequency

- Many respondents also agree that detailed information should not be given for every single hedge fund.
 - ⇒ Increasing the quantity of information at higher aggregation levels (e.g. strategy group),
 - ⇒ Decreasing the quantity of information at lower aggregation levels (e.g. fund),
 - ⇒ On the other hand, a breakdown by level of liquidity and asset type should be given at the strategy group level.

Content of FoHF Reports

Sentiments and Practices of Market Participants

Return Analysis

- Monthly and annual returns should be given at all aggregation levels, from strategy group to fund level.
- YTD or cumulative returns since inception should be reserved for strategy group and strategy levels so as to avoid any data overkill effect.
- The same is true of performance that is conditional on equity and bond market conditions.
- Performance at the FoHF level over the last 12/24/36/60 months could also be included in the report to facilitate the comparison of FoHFs with different track records.

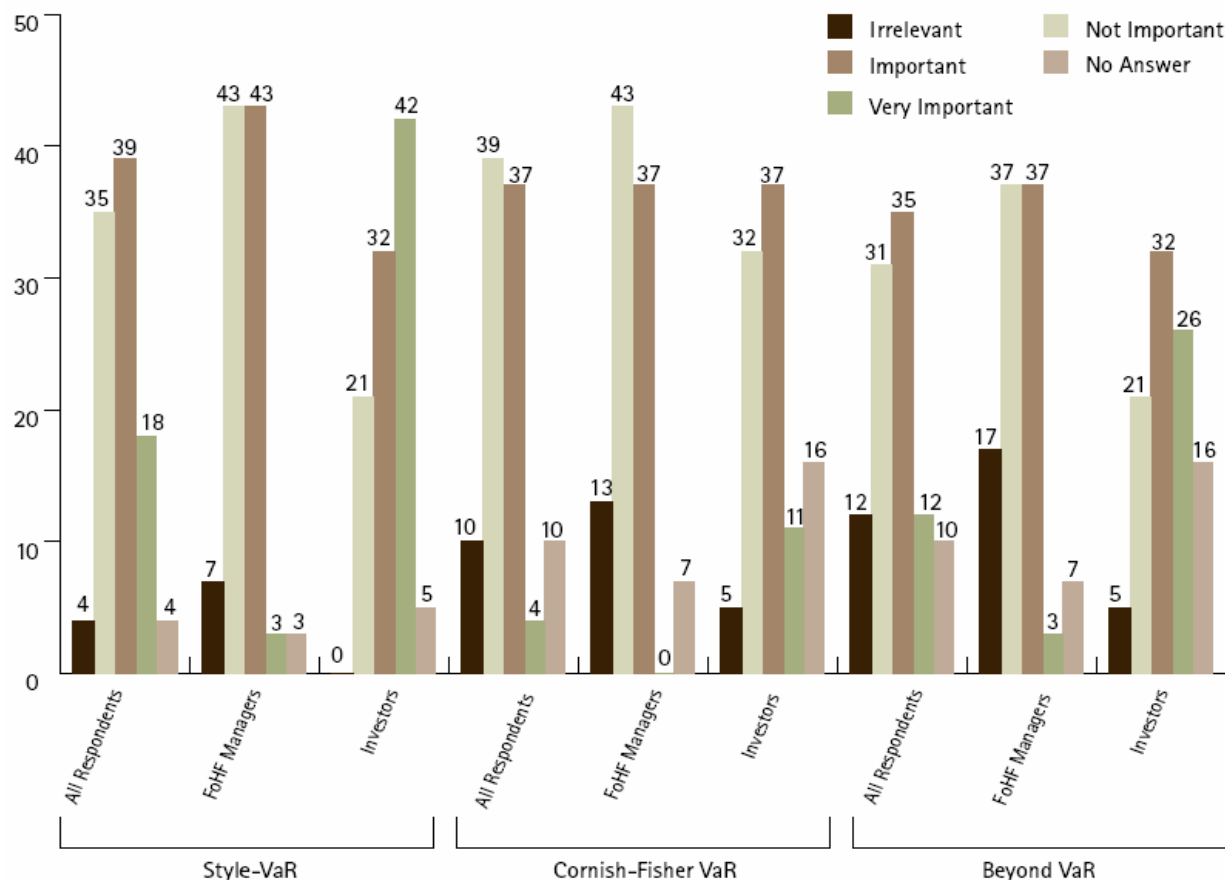
Content of FoHF Reports

Sentiments and Practices of Market Participants

Risk Analysis

- Not surprisingly, investors seem to be more concerned by losses than fund managers.

How important are the following extreme risk indicators?



Content of FoHF Reports

Sentiments and Practices of Market Participants

Risk Analysis

- Nevertheless, there is now a broad consensus on the fact that the whole spectrum of risk dimensions should be covered by monthly reports ranging:
 - From normal risks (volatility),
 - To extreme risk (e.g. VaR measures, expected shortfall, stress tests, etc),
 - Or loss risks (e.g. maximum drawdown, uninterrupted loss).
- This information should be available to investors at the strategy group and strategy levels.

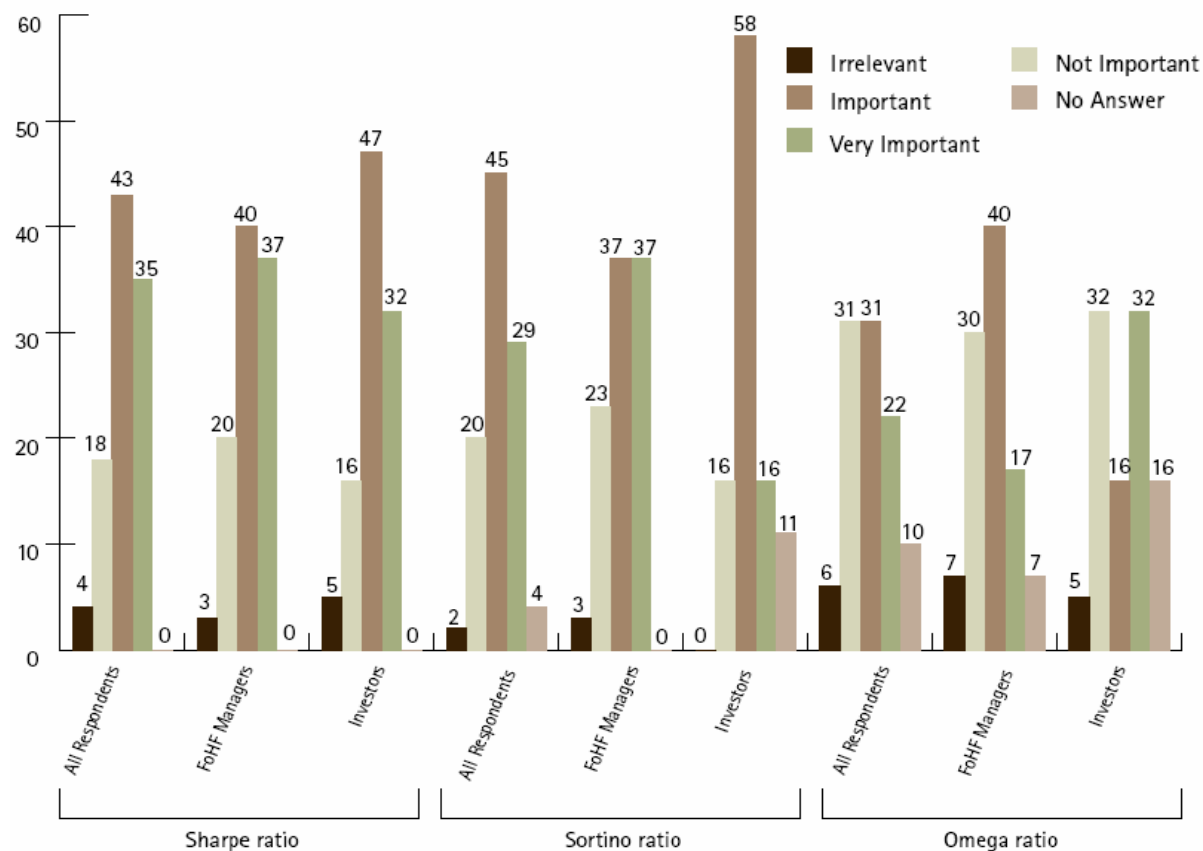
Content of FoHF Reports

Sentiments and Practices of Market Participants

Risk-adjusted Return Analysis

- In line with the previous results, investors seem to be most interested in the “alternative” ratios that are more robust for the specific features of HF strategies.

How important are the following risk-adjusted performance indicators?



Content of FoHF Reports

Sentiments and Practices of Market Participants

Risk-adjusted Return Analysis

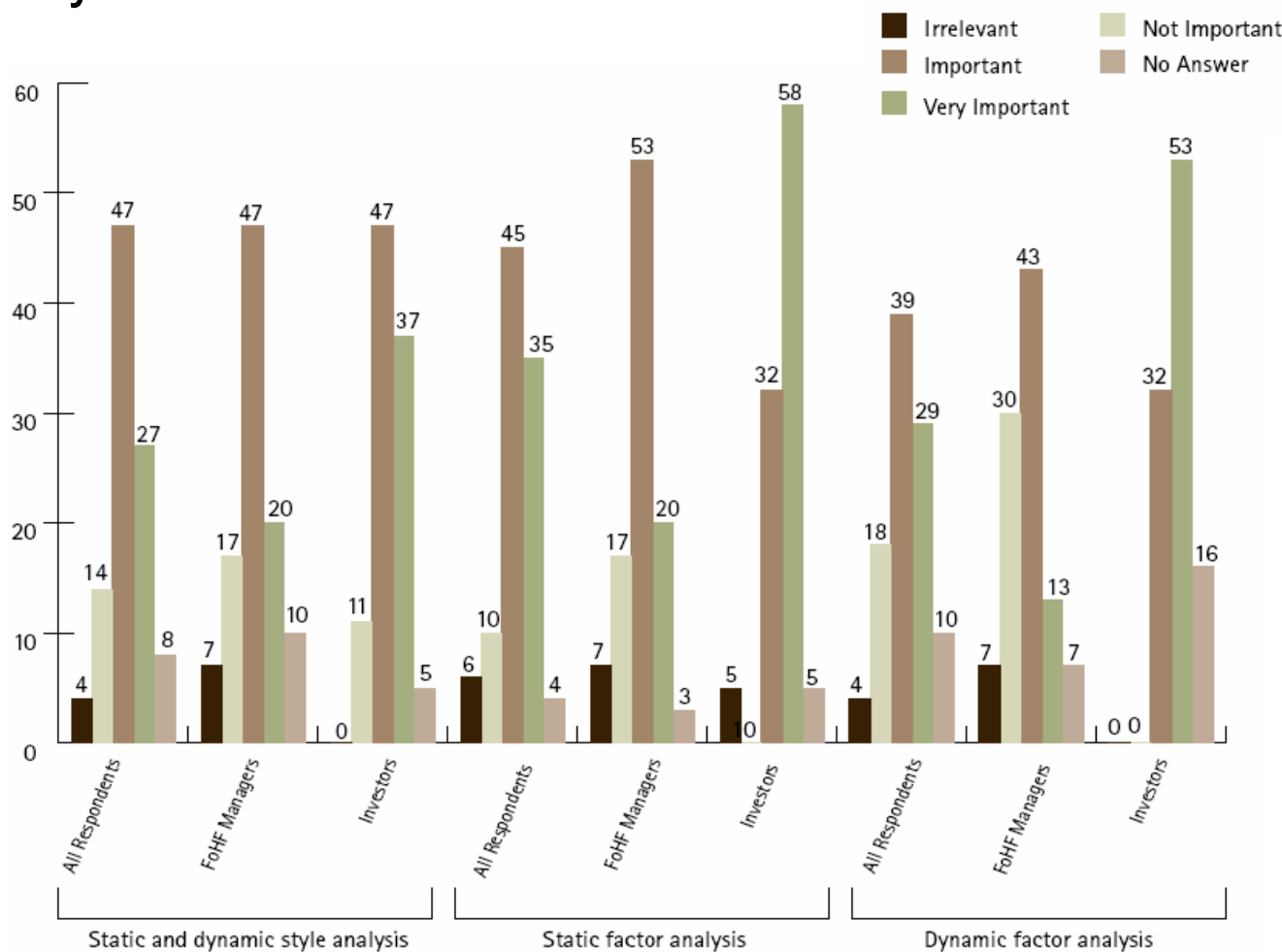
- Monthly reports should include risk-adjusted performance measures (covering all the dimensions of risk: normal and extreme risks).
- Risk-adjusted performance indicators should encompass both traditional (e.g. Sharpe) and alternative ratios (e.g. Omega).
- Detailed information should be given at the strategy group and strategy levels.

Content of FoHF Reports

Sentiments and Practices of Market Participants

Beta and Correlation Analysis

- Predictably, investors show more interest in static and dynamic style analysis.



Content of FoHF Reports

Sentiments and Practices of Market Participants

Beta and Correlation Analysis

- As HF strategies are increasingly used for their diversification properties, investors must be able to monitor the FoHF risk profile on a regular basis.
- As a result, monthly reports should include in-depth style and factor analysis, both static and dynamic, at the FoHF level.
- It would also be interesting to include a factor analysis at the strategy group and strategy levels to perform the risk attribution process in parallel with the performance attribution process.

Content of FoHF Reports

Sentiments and Practices of Market Participants

- Conclusion of the Consultation Period
 - Information is a crucial issue for the future of the HF industry.
 - As the range of investors has widened considerably, it is high time for a better definition of the level of information required by investors.
 - Activity reports should first inform investors about the levels of risk and performance of the FoHF through:
 - A series of risk and return measures with corresponding risk-adjusted performance indicators in order to measure the return per unit of risk (e.g. volatility, VaR, drawdown, etc.) generated by the FoHF,
 - More insight into the way the FoHF is managed (effective style mix),
 - Risk factor analysis,
 - Performance attribution that could inform investors about sources of value-added.

Recommendations for FoHF Reporting

Risk & Return Indicators

- Series of risk-adjusted performance and risk indicators allowing the specific characteristics of the performance of alternative strategies to be taken into account without necessitating the disclosure of individual positions:
 - Traditional Performance Measurement Tools:
 - History of FoHF's monthly returns (net of fees^{**})^M,
 - History of monthly returns (net of fees^{**})^M for each strategy and each fund in which the FoHF invests,
 - FoHF's annualised return (net of fees^{**})^M,
 - Annualised return (net of fees^{**})^M for each strategy and each fund in which the FoHF invests,
 - FoHF's year-to-date return (net of fees^{**})^M, year-to-date return for each strategy and each fund in which the FoHF invests^M,
 - FoHF's cumulative return since inception (net of fees^{**}) compared with a composite index of hedge funds, traditional equity and bond indices as well as the risk-free rate,
 - Analysis of the contribution of each strategy and each fund to the FoHF's return^M,
 - Performance attribution (analysis of excess return with a composite index: asset allocation, fund picking).

Recommendations for FoHF Reporting

Risk & Return Indicators

- Series of risk-adjusted performance and risk indicators (cont')
 - Basic Extreme Risk Measure:
 - Minimum/maximum returns for the period, maximum drawdown (peak to valley) and uninterrupted loss since the FoHF was launched with both time to recovery and drawdown time.
 - Analysis of the (non) Linearity of Returns:
 - Percentage of positive/negative months,
 - Up months in up market,
 - Down months in down market,
 - Outperformance in up market,
 - Outperformance in down market.
 - Analysis of the Return Distribution Function:
 - Annualised standard deviation and semi-variance or downside risk to account for asymmetrical distributions^M,
 - Skewness to measure the asymmetry of the distribution^M,
 - Kurtosis to verify the fatness of the distribution tails^M.

Recommendations for FoHF Reporting

Risk & Return Indicators

- Series of risk-adjusted performance and risk indicators (cont')
 - Interaction between Leverage and both Credit and Liquidity Risks:
 - Gross and net leverage analyzed at the FoHF level (with breakdown by sector, management style, country, currency, etc.), and also by strategy and by hedge fund held, simply because an apparently low risk at the portfolio level may mask an unreasonable long or short bet on one or more strategies or asset groups^M,
 - Calculation of the effective duration and spread duration (credit risk) for interest rate products^M,
 - Liquidity risk evidenced by the auto-correlation coefficient, for which the degree of significance is measured by the Ljung-Box statistical test,
 - Evaluation of the liquidity risk through the Herfindahl index,
 - Liquidity ratios (cash/equity or cash+borrowing capacity, VaR/equity or cash+borrowing capacity, worst historical drawdown/equity or cash+borrowing capacity, scenario derived market risk measure/equity or cash+borrowing capacity)^M.

Recommendations for FoHF Reporting

Risk & Return Indicators

- Series of risk-adjusted performance and risk indicators (cont')
 - Analysis of outliers:
 - Stress test^M to assess the impact on the FoHF's NAV of a sudden and sharp change in market prices (requires the application of identical stress scenarios to each hedge fund held),
 - Style-VaR (Lhabitant), which provides a relevant measure of the risks of extreme losses. This method is also particularly useful within the framework of a FoHF because it allows the investment style of a fund to be clearly determined, dynamically and over time, irrespective of what the manager claims (multifactor approach),
 - Cornish-Fisher VaR, together with Incremental and Component Cornish-Fisher VaR, to assess the contribution of each strategy to the portfolio's extreme risk,
 - Expected shortfall that gives an idea of the magnitude of the worst potential losses (beyond VaR).

Recommendations for FoHF Reporting

Risk & Return Indicators

- Series of risk-adjusted performance and risk indicators (cont')
 - Risk-adjusted performance indicators:
 - Sortino ratio: more relevant than the Sharpe ratio when the return distribution is skewed, particularly when it is left-skewed! Defined from the same principles, except that the risk-free rate is replaced by the minimum acceptable return (MAR) targeted by the FoHF and the denominator is the standard deviation of the returns below that return^M.
 - Omega: indicator recently proposed by Keating and Shadwick (2002). It allows all the moments of the return distribution function to be taken into account in a very simple way.
 - Alternative-Style-Risk Adjusted Performance (ASRAP): adaptation of the SRAP to performance measurement in the alternative universe. The risk is no longer adjusted by the volatility but by the Cornish-Fisher extension to the VaR.
 - Calmar & Sterling ratios: use the drawdown to define the risk dimension.

Recommendations for FoHF Reporting

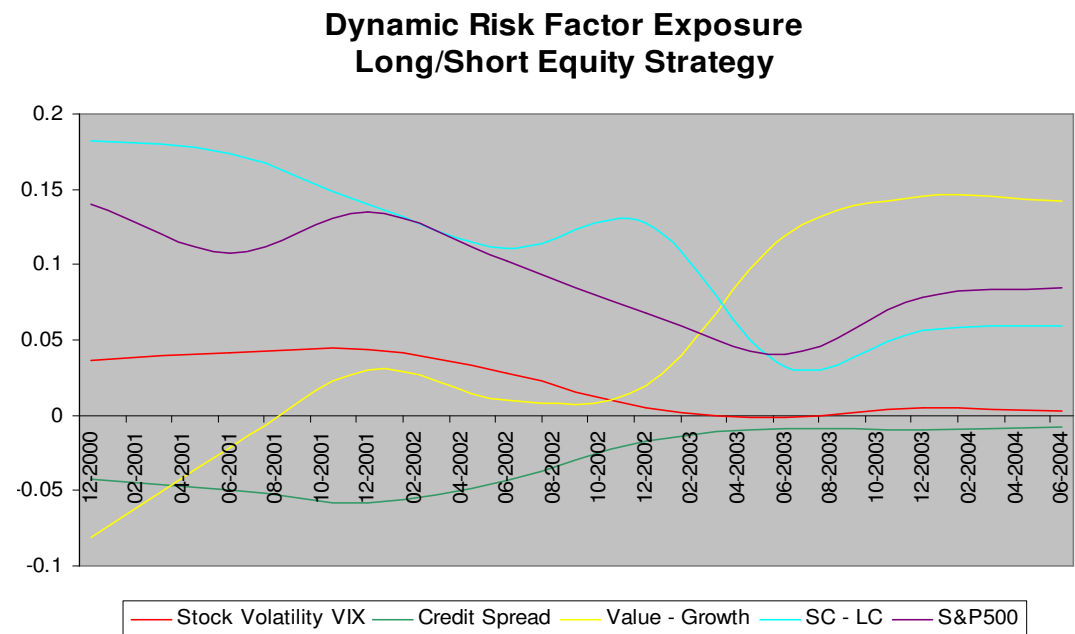
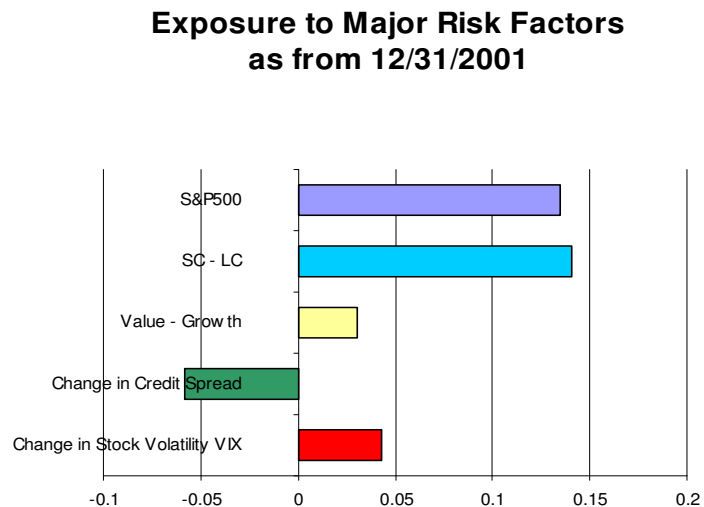
Risk & Return Indicators

- Series of risk-adjusted performance and risk indicators (cont')
 - Analysis to be carried out both at the FoHF level and for each type of strategy / fund in which the FoHF invests:
 - Static and dynamic style analysis, notably using pure style indices (e.g. Edhec alternative indices). This analysis presents the particular advantage of highlighting any eventual style drift;
 - Analysis of correlations and conditional/unconditional betas with traditional equity and bond indices^M,
 - Analysis of correlations and conditional/unconditional betas with appropriate risk factors,

Recommendations for FoHF Reporting

Risk & Return Indicators

- Series of risk-adjusted performance and risk indicators (cont')
 - Analysis to be carried out both at the FoHF level and for each type of strategy / fund in which the FoHF invests:
 - Dynamic factor analysis to track the evolution of the exposure to the risk factors characterizing the strategy followed.



Recommendations for FoHF Reporting

Risk & Return Indicators

- Series of risk-adjusted performance and risk indicators (cont')
 - Analysis to be carried out both at the FoHF level and for each type of strategy / fund in which the FoHF invests:
 - For more demanding investors, one can attempt to enhance reports by:
 - Assessing the alpha generated by the FoHF through multi-factor/multi-index models:

Market Timing
Fund Picking

$$R_{Pt} = \alpha_P + \sum_{k=1}^K \beta_{Pk} F_{kt} + \zeta_{Pt}$$

Traditional Equity Factors
Traditional Bond Factor
Alternative Equity Factors
Alternative Bond Factors
Other Alternative Factors

- Measuring its persistence (Gain frequency and Hurst exponent).

Recommendations for FoHF Reporting

Risk & Return Indicators

- All the above-mentioned indicators provide exhaustive information in the area of applied quantitative analysis and enable the FoHF to build quality reports for final investors.
- In line with the expectations of the IRC, such reports measure the financial risks incurred by the FoHF and check on their evolution without the need for details on the positions.
- However, the client report alone does not suffice. It cannot replace the classic due diligence process (questionnaires, on-site visits, discussions with the manager, etc.):
 - Thorough knowledge of the fund/management team is essential to make up for any eventual weaknesses in the quantitative analysis, and assess operational risk.
 - In-depth qualitative analysis complements the quantitative analysis that appears in the client report.