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2nd Annual Conference on Hedge Funds *Markets, Liquidity and Fund Managers' Incentives*

Palais Brongniart
28 Place de la Bourse
75002 Paris

January, 28-29, 2010

Organizers: Serge Darolles (Lyxor AM and CREST)
Christian Gouriéroux (CREST and University of Toronto)
David Thesmar (HEC Paris)

January 28, 2010

8.30-9.00 Registration

9.00-11.00 **Session 1: Hedge Funds Returns**
Chair:

How to Reward Trading Skills Without Inducing Gambling?

I. Makarov (London Business School), G. Plantin (London Business School, TSE, and CEPR)

Discussant: G. Chemla (Imperial College and DRM-CNRS)

The Effects of Management and Provision Accounts on Hedge Fund Returns

S. Darolles (Lyxor AM and CREST), C. Gouriéroux (University of Toronto and CREST)

Discussant: L. Grillet Aubert (AMF)

Inferring Reporting Biases in Hedge Fund Databases from Hedge Fund Equity Holdings

V. Agarwal (Georgia State University), V. Fos (Columbia University), W. Jiang (Columbia University)

Discussant: A. Galichon (Ecole Polytechnique)

11.00-11.30 Tea/Coffee

11.30-12.30 **Invited Session 1**

Chair: David Thesmar (HEC Paris)

Destabilizing Speculation and Crowded Trades

Harrison Hong (Princeton University)

12.20-14.00 Lunch

14.00-16.00 **Session 2: Systemic Risk**

Chair:

Funding Liquidity, Crises and Systemic Risk

M. Billio (University of Venice), M. Getmanski (University of Massachusetts),
A. Lo (MIT), L. Pelizzon (University of Venice)

Discussant: G. Le Fol (University of Evry and CREST)

Hedge Funds and Cross-Market Linkages

B. Büyüksahin (CFTC), M. Robe (CFTC and American University)

Discussant: C. Perignon (HEC Paris)

Connected Stocks

M Anton (London School of Economics), C. Polk (London School of
Economics)

Discussant: A Landier (TSE)

16.00-16.30 Tea/Coffee & **Poster Session 1**

16.30-17.50 **Session 3: Liquidity I**

Chair:

Liquidity Risk and the Cross-Section of Hedge-Fund Returns

Ronnie Sadka (Boston College)

Discussant: J. Hombert (HEC Paris)

How Liquid Are Liquid Hedge Funds?

Melvin Teo (Singapore Management University)

Discussant: Joël Peress (Insead)

18.00-19.30 **Panel Session: Revisiting the Classification of Hedge Funds**

Chair: Sophie Van Straelen (Asterias)

- From traditional strategies to a classification by liquidity terms and assets traded
- From opacity in the process to plain vanilla strategies?
- From co-mingled funds to dedicated portfolios?
- Liquidity for mass market offering?

January 29, 2010

9.00-11.00 **Session 4: Performance and allocation**

Chair:

Performance Analysis of a Collateralized Fund Obligation (CFO) Equity Tranche

S Aboul-Enein (Desjardins AM and HEC Montreal), Georges Dionne (HEC Montreal), *N. Papageorgiou (HEC Montreal)*

Discussant: R. Douady (RiskData)

The Option CAPM and The Performance of Hedge Funds

A. Diez de los Rios (BBVA), *R. Garcia (Edhec Business School)*

Discussant:

The Exchange Rate Effect of Multi-Currency Risk Arbitrage
Harald Hau (Insead)

Discussant: J. Teiletche (Dauphine University)

11.00-11.30 Tea/Coffee

11.30-12.30 **Invited Session 2**

Chair: Serge Darolles (Lyxor AM and CREST)

Institutional Flows and Asset Prices

Dimitri Vayanos (London School of Economics)

12.30-14.00 Lunch

14.00-15.20 **Session 5: Liquidity II**

Chair:

Asset Fire Sales and Purchases and the International Transmission of Funding Shocks

P. Jotikasthira (University of North Carolina, Chapel Hill), C. Lundblad (University of North Carolina, Chapel Hill), *T. Ramadorai (University of Oxford)*

Discussant: J. Olivier (HEC Paris)

Do Hedge Funds Provide Liquidity?

I. Ben-David (Ohio State University) *Francesco Franzoni (Swiss Finance Institute and University of Lugano)*, R. Moussawi (University of Pennsylvania)

Discussant: J. Gaspar (ESSEC)

15.20-15.50 Tea/Coffee & **Poster Session 2**

15.50-17.10 **Session 6: Dynamics**

Chair:

Hedge Fund Predictability Under the Magnifying Glass: Forecasting Individual Fund Returns Using Multiple Predictors

D. Avramov (University of Maryland), L. Barras (McGill University), R. Kosowski (Imperial College)

Discussant: O. Scaillet (HEC Genève)

On the Dynamics of Hedge Fund Risk Exposures

A. Patton (Duke University), T. Ramadorai (University of Oxford)

Discussant: J.D. Fermanian (ENSAE)

The conference papers are available on the CREST website: <http://www.crest.fr/>

ABSTRACTS

Makarov and Plantin - *'How to Reward Trading Skills Without Inducing Gambling?'*

Darolles and Gouriéroux - *'The Effects of Management and Provision Accounts on Hedge Fund Returns'*

A characteristic of hedge funds is not only an active portfolio management, but also the allocation of portfolio performance between different accounts, which are the accounts for the external investors, an account for the management firm and a provision account. Despite a lack of transparency in hedge fund market, the strategy of performance allocation is publicly available. This paper shows that these complex performance allocation strategies might explain stylized facts observed in hedge fund returns, such as return persistence, skewed return distribution, bias ratio, or implied increasing risk appetite.

Agarwal, Fos and Jiang - *'Inferring Reporting Biases in Hedge Fund Databases from Hedge Fund Equity Holdings'*

This paper is a first study that formally analyzes the degree of the self-reporting bias in the hedge funds databases by exploring the quarterly equity holdings of a complete list of hedge fund companies that file the Form 13F to the SEC between 1980 and 2008 and a union of five major self-reported hedge fund databases. We find that the propensity to self-report is consistent with the trade-offs between the benefits (access to prospective investors) and costs (revealing trading secrecy and losing flexibility in selective marketing) of self-reporting. Though self-reporting and non-reporting funds do not differ significantly in return performance, reporting funds experience substantial deterioration in performance after both the reporting initiation and termination dates.

Hong – *'Destabilizing Speculation and Crowded Trades'*

Billio, Getmansky, Lo and Pelizzon - *'Funding Liquidity, Crises and Systemic Risk'*

Büyüksahin and Robe - *'Hedge Funds and Cross-Market Linkages'*

In the last two decades, there has been no secular increase in the correlation between the returns on passive investments in equities and commodities. Those correlations, however, do fluctuate substantially over time. Using a unique dataset of daily trader positions in 18 US commodity and equity futures markets from 2000 to 2008, we show that the composition of open interest in commodity futures markets helps explain those fluctuations. *Ceteris paribus*, commodity-equity comovements increase amid greater hedge fund activity. In contrast, we find little evidence that other kinds of commodity futures traders (swap dealers and index traders, traditional commercial traders, etc.) help explain commodity-equity correlations. We show that cross-market comovements are also positively related to financial market stress. Intuitively, hedge funds could be an important transmission channel of negative equity market shocks into the commodity space. In fact, we find that the impact of hedge fund activity is reduced during periods of stress. This result is consistent with the possibility that, as stress remains high after the initial shock, hedge funds reduce their activities in commodity markets – which helps decouple equities and commodities. Overall, our results indicate that *who* trades helps explain the joint distribution of commodity and equity returns.

Anton and Polk - *'Connected Stocks'*

We exploit the information in institutional connections to forecast cross-sectional variation in the extent to which stocks covary together. We connect stocks through common ownership by active mutual funds as well as by common coverage by equity analysts. We find that both measures of connectedness predict higher covariance, controlling for standard characteristics such as similarity along the dimensions of industry, size, book-to-market ratio, and momentum. The predictive effect is statistically and economically quite significant. We provide evidence consistent with the comovement arising from ownership connections being partly due to a contagion effect. In particular, a trading strategy that uses the return on stock's connected portfolio as a confirming signal for a short-term reversal effect generates abnormal returns of 9.5% per year.

Sadka - *'Liquidity Risk and the Cross-Section of Hedge-Fund Returns'*

This paper demonstrates that liquidity risk as measured by the covariation of fund returns with unexpected changes in aggregate liquidity is an important determinant in the cross-section of hedge-fund returns. The results show that funds that significantly load on liquidity risk subsequently outperform low-loading funds by about 6% annually, on average, over the period 1994-2008, while negative performance is observed during periods of significant liquidity crises. The returns are independent of the liquidity a fund provides to its investors as measured by lockup and redemption notice periods, and are also robust to commonly used hedge-fund factors, none of which carries a significant premium during the sample period. These findings highlight the importance of understanding systematic liquidity variations in the evaluation of hedge-fund performance.

Teo - *'How Liquid Are Liquid Hedge Funds?'*

This paper evaluates hedge funds that grant favorable redemption terms to investors. We find that there exists substantial variation in the liquidity risk exposures of these "liquid" funds. Within this large group of funds, those that embrace liquidity risk outperform those that eschew liquidity risk by 4.63 percent per year. As a result, capital flows exert a positive and significant impact on subsequent hedge fund returns. The effects of flows are transient and more pronounced for outflows, for funds with greater liquidity risk exposure, when funds employ leverage, and during a liquidity crunch. These results resonate with the theory of funding liquidity advanced by Brunnermeier and Pedersen (2009), and shed light on the asset-liability mismatch in the hedge fund industry.

Aboul-Enein, Dionne and Papageorgiou - *'Performance Analysis of a Collateralized Fund Obligation (CFO) Equity Tranche'*

This article examines the performance of the junior tranche of a Collateralized Fund Obligation (CFO), i.e. the residual claim (equity) on a securitized portfolio of hedge funds. We use a polynomial goal programming model to create optimal portfolios of hedge funds, conditional to investor preferences and diversification constraints (maximum allocation per strategy). For each portfolio we build CFO structures that have different levels of leverage, and analyze both the stand alone performance as well as potential diversification benefits (low systematic risk exposures) of investing in the Equity Tranche of these structures. We find that the unconstrained mean-variance portfolio yields a high performance, but greater exposure to systematic risk. We observe the exact opposite picture in the case of unconstrained optimization where a skewness bias is added, thus proving the existence of a trade-off between stand alone performance and low exposure to systematic risk factors. We provide evidence that leveraged exposure to these hedge fund portfolios through the structuring of

CFOs creates value for the Equity Tranche investor. correlations. Our model casts a new light on the modelling of correlation in fund returns by linking it to measures of market depth.

Diez de los Rios and Garcia - *'The Option CAPM and The Performance of Hedge Funds'*

We evaluate the investment performance of hedge funds using an asset pricing model that is characterized by a piecewise-linear stochastic discount factor, and which we estimate using the generalized method of moments by minimizing the Hansen-Jagannathan distance. Our results show that, once non-linearities and public information are taken into account, there is only evidence of positive performance for the overall hedge fund index, equity-market neutral strategy and the global macro strategy.

Hau - *'The Exchange Rate Effect of Multi-Currency Risk Arbitrage'*

This paper documents how currency speculators trade when international capital flows generate predictable exchange rate movements. The redefinition of the MSCI world equity index in December 2000 provides an ideal natural experiment identifying exogenous capital flows of index tracking equity funds. Currency speculators are shown to front-run international capital flows. Furthermore, they actively manage the portfolio risk of their speculative positions through hedging positions in correlated currencies. The exchange rate effect of separate risk hedging is economically significant and amounts to a return difference of 3.6 percent over a 5 day event window between currencies with high and low risk hedging value. The results of the classical event study analysis are confirmed by a new and more powerful spectral inference isolating the high frequency cospectrum of currency pairs. The evidence supports the idea that international currency arbitrage is limited by the speculators' risk aversion.

Vayanos - *'Institutional Flows and Asset Prices'*

Jotikasthira, Lundblad and Ramadorai - *'Asset Fire Sales and Purchases and the International Transmission of Funding Shocks'*

We provide new evidence on the sources and magnitude of financial contagion effects. Employing monthly data from 1996 to 2008 on over 1,000 developed country-domiciled mutual and hedge funds, we show that inflows and outflows experienced by these funds translate into significant changes in their portfolio allocations in 25 emerging markets. Despite funds' efforts to ameliorate the price impact of these portfolio allocation shifts, they substantially impact emerging market equity returns and are associated with elevated covariances between emerging and developed markets.

Itzhak, Franzoni and Moussawi - *'Do Hedge Funds Provide Liquidity'*

The common view is that hedge funds provide liquidity to financial markets by taking the opposite side of liquidity trades. On the other hand, recent theoretical literature (Brunnermeier and Pedersen, 2009) suggests that, when the capital available for trading is low, liquidity provision by hedge funds may be hindered. This theory envisages 'liquidity spirals' in which funding liquidity (the availability of funds for trading) and market liquidity (the ease of trading a security) fall together.

This paper will study the trading behavior of hedge funds in relation to liquidity provision, based on a novel data set based on 13-F reports of long equity positions. Specifically, we intend to document under what conditions hedge funds provide liquidity and when, instead, their behavior conforms to the scenario of liquidity spirals.

Further, we ask whether there is cross-sectional heterogeneity in hedge funds in relation to liquidity provision. Motivated by the results in Hombert and Thesmar (2009), we focus on

provisions such as the lock-up period and the redemption notice to see whether they impact hedge fund trading in times of low liquidity. Hopefully, the results will contribute to the debate on the design of an efficient regulatory framework for hedge funds (Acharya, Pedersen, Philippon, and Richardson, 2009).

Our preliminary results show that hedge funds appear to consume liquidity rather than to provide liquidity. At times of low liquidity in the market, hedge funds reduce their equity holdings, and in particular in illiquid stocks. This result is robust to liquidity definitions, both at the market level and at the stock level.

Avramov, Barras and Kosowski - *'Hedge Fund Predictability Under the Magnifying Glass: Forecasting Individual Fund Returns Using Multiple Predictors'*

This paper develops and applies a framework in which to carefully assess the true forecasting power of economic variables in predictive regressions in a large universe of individual hedge funds. We shed light on the sources and economic interpretation of predictor models that generate superior out-of-sample performance. Using monthly returns for more than 15,000 funds during the period January 1994 through December 2008, we find strong evidence of predictability in the hedge fund industry. We show that the economic value of predictability can be improved by employing a strategy that combines forecasts from several single predictive regressions instead of relying on single or multiple predictive regressions. We investigate the economic and statistical sources of such a combination strategy's superior performance by examining the signal to noise ratio in different components of the predictive regression relationship and by examining the characteristics of funds selected by the strategy. Finally, we use the financial crisis of 2008 as a natural out-of-sample test and show that the combination strategy produces superior risk-adjusted performance during the crisis.

Patton and Ramadorai - *'On the Dynamics of Hedge Fund Risk Exposures'*

We propose a new method to capture changes in hedge funds' exposures to risk factors, exploiting information from relatively high frequency conditioning variables. Using a consolidated database of nearly 10,000 individual hedge funds between 1995 and 2008, we find substantial evidence that hedge fund risk exposures vary significantly across months. Our new method also reveals that hedge fund risk exposures vary within months, and capturing this variation significantly improves the fit of the model. The proposed method outperforms an optimal changepoint approach to capturing time-varying risk exposures, and we find evidence that there are gains from combining the two approaches. We find that the cost of leverage, movements in the VIX, and recent performance are the most important drivers of changes in hedge fund risk exposures.

POSTER SESSIONS 1 (January 28, 2010)

R. Savona (University of Brescia) - 'Risk and Beta Anatomy in the Hedge Fund Industry'

Using a Bayesian time-varying beta model, we explore how the systematic risk exposures of hedge funds vary over time conditional on some exogenous variables that managers are assumed to use in changing their trading strategies. In such a setting, we impose a structure on fund returns, betas and benchmark returns, developing a framework that could help explain how expected and unexpected hedge fund returns are correlated with systematic risk factors through the beta dynamics. Such a system also provides a useful way of (a) inspecting how and through which channels systemic risk propagates over time; (b) evaluating the performance conditional on public information within a Bayesian context; (c) cloning hedge funds by means of beta replication; (d) monitoring the risk of hedge fund returns in a VaR-based context. The major findings of this work, based on the analysis of the CSFB/Tremont indices over the period January 1994– September 2008, are that: (1) volatility, changes in T-bill, term spread and shocks in liquidity significantly impact on the time variation of hedge fund betas; (2) increasing interdependencies in beta dynamics among hedge funds together with leverage levels and shocks in liquidity are the key factors underlying the dynamics of systemic risk; (3) conditional time variation in betas leads to the conclusion that the hedge fund industry did not deliver excess returns over its own style benchmark; (4) replicating the risk/return characteristics of hedge funds through our beta modelling seems to do a good job, also delivering better performances on a risk-adjusted basis; (5) simulation-based exercises on VaR predictions prove that our technology could be a serious candidate in hedge fund risk-monitoring systems.

B. Klaus (Goethe University Frankfurt), B. Rzepkowski - 'Hedge funds and prime brokers: The role of funding risk'

Using a unique data set with information on individual hedge funds and prime brokers this paper analyses three potential determinants of hedge funds' funding risk: financial distress of prime brokers, reliance on multiple prime brokers and large investor redemptions. The paper thereby contributes to our understanding of the interconnectedness of hedge funds and other market participants. Our findings show that an increase in prime brokers' distress is associated with a significant decline in fund performance. Hedge funds benefit from relying on multiple prime brokers in having significantly higher returns. Depending on the length of the restriction period, requests for large investor redemptions affect fund returns over consecutive months, indicating the investment into more illiquid assets.

G. Ozik (Edhec Business School), R. Sadka (Boston College) – 'Flow Impact and Smarter Money'

This paper demonstrates that hedge-fund flow significantly impacts fund return. We introduce a model of flow impact, and show that the smart-money phenomenon predominantly stems from high-flow-impact funds. A "smarter-money" strategy, such that concentrates in high-flow- impact funds fairs significantly better than a strategy which concentrates in low-flow-impact funds and earns up to 7% annually over 1994–2008, after controlling for various risk factors. The effect is strongly apparent among Long/Short Equity funds but there is no significant relation with share restriction. The returns to smarter-money strategies persist for over six months, while the return difference between a smart-money strategy among high-flow-impact funds and low-flow-impact funds persists for over two years. Further analysis indicates that smarter money mainly stems from outflows. The paper suggests that flow itself creates an impact which translates into returns and makes money appear smarter in hindsight.

J.E. Hodder (University of Wisconsin-Madison), J. C. Jackwerth (University of Konstanz), **O. Kolokolova (University of Konstanz) – ‘Recovering Delisting Returns of Hedge Funds’**

Numerous hedge funds stop reporting to commercial databases each year. An issue for hedge-fund performance estimation is: what delisting return to attribute to such funds? This would be particularly problematic if delisting returns are typically very different from continuing funds’ returns. In this paper, we use estimated portfolio holdings for funds-of-funds with reported returns to back out maximum likelihood estimates for hedge-fund delisting returns. The estimated mean delisting return for all exiting funds is small, although statistically significantly different from the average observed returns for all reporting hedge funds. These findings are robust to relaxing several underlying assumptions.

W. Distaso (Imperial College London), M. Fernandes (Queen Mary, University of London), **F. Zikes (Imperial College London) - ‘Tailing tail risk in the hedge fund industry’**

Abstract: This paper aims to assess dynamic tail risk exposure in the hedge fund sector. In particular, we model lower-tail dependence between hedge funds, bond, commodity, foreign exchange, and equity markets as a function of market uncertainty. We proxy the latter by means of a single index that combines the options-implied market volatility, the volatility risk premium, and the term spread. We find substantial time-variation in tail dependence even for hedge-fund styles that exhibit little unconditional tail dependence. This illustrates well the pitfalls of confining attention to unconditional measures of tail risk. In addition, tail dependence between hedge fund and equity market returns decreases significantly with both measures of market uncertainty, alleviating thus the likelihood of financial contagion. The only styles that feature neither unconditional nor conditional tail dependence are convertible arbitrage and equity market neutral. We also fail to observe any tail dependence with bond and currency markets, though we find strong evidence that the tail risk exposure of macro hedge funds to commodity markets increases with uncertainty. Our results are very robust to changes in the specific measure of tail dependence as well as in the factors that drive tail dependence. In addition, specification tests confirm that our semi parametric model not only fits very well the lower tails but also entail coefficient estimates that are very stable over time.

J. Joenväärä (University of Oulu) – ‘On hedge funds’ relation to systemic risk’

I examine hedge funds’ relation to systemic risk in the financial system. I measure systemic risk using the co-expected-shortfall (CoES) approach proposed by Adrian and Brunnermeier (2009). The paper documents several empirical findings. Using portfolio sorts and pooled regressions, I find that hedge fund investment strategies, instruments used in leveraging and the fund’s asset liquidity are related to systemic risk. In particular, funds (i) in Relative Value and Multi-process strategies, (ii) leveraging using margin borrowing and complex derivatives, and (iii) investing in illiquid assets tend to contribute to systemic risk more than their peers. The findings also show that there is an asymmetric relation between hedge fund returns and the CoES. Specifically, during the Flight-to-Liquidity episodes (normal periods) funds with a high (low) systemic risk (CoES) deliver lower (higher) returns. Finally, financial and operational risks, but not systemic risk, remain the main explanatory variables in predicting fund failures.

POSTER SESSIONS 2 (January 29, 2010)

P. Merlin (A.A.A., Variances and University of Paris-1), B. Maillet (A.A.A., Variances and University of Paris-1) – ‘Hedge Fund Time-series Completion and Scenarios Generation for Robust Asset Allocation and Risk Measurement’

Missing values occur recurrently in financial database, moreover financial methods need complete and cylindrical input databases. Furthermore, future values in financial time series could be considered as missing values. Under the Gaussian hypothesis, several methods have been proposed, but such methods are no more available when dealing with asset class returns those exhibit non-Gaussianity peculiarities. In this paper, we proposed alternatives methods to perform times series completion and scenarios generation without Gaussian hypothesis. This method operates the Kohonen algorithm altogether with Empirical Orthogonal Functions and the Constrained Randomization Method. The accuracy of rebuilt time-series is then evaluated according to a comparison of completion done with the Expected Conditional Maximization algorithm when performing asset allocations and risk measures.

B. Minsky (International AM), M. Obradovic (Sussex University), Q. Tang (Sussex University), R. Thapar (International AM) – ‘Applying a global optimisation algorithm to Fund of Hedge Funds portfolio optimisation’

Portfolio optimisation for a Fund of Hedge Funds (“FoHF”) has to address the asymmetric, non-Gaussian nature of the underlying returns distributions. Furthermore, the objective functions and constraints are not necessarily convex or even smooth. Therefore traditional portfolio optimisation methods such as mean-variance optimisation are not appropriate for such problems and global search optimisation algorithms could serve better to address such problems. Also, in implementing such an approach the goal is to incorporate information as to the future expected outcomes to determine the optimised portfolio rather than optimise a portfolio on historic performance.

In this paper, we consider the suitability of global search optimisation algorithms applied to FoHF portfolios, and using one of these algorithms to construct an optimal portfolio of investable hedge fund indices given forecast views of the future and our confidence in such views.

L. Cai (University of Massachusetts Amherst), B. Liang (University of Massachusetts Amherst), - ‘On the Dynamics of Hedge Fund Strategies’

It is well known that hedge fund managers are largely free to pursue dynamic trading strategies, which implies time-varying alphas and risk exposures. Thus, the conventional OLS regression is incapable of analyzing hedge fund performance and the traditional static betas are insufficient to capture hedge fund risks. In this paper, we adopt both the rolling OLS and a dynamic linear regression model on hedge fund style portfolios and unveil dynamic alphas and betas for each style. Additionally, this dynamic linear regression model has a strong out-of-sample predicting power which helps to implement a profitable fund selection process. We also apply an intuitive market timing coefficient to examine the timing ability of hedge fund managers.

G. Criton (University of Geneva), O. Scaillet (University of Geneva) – ‘Time-Varying Coefficient Model for Hedge Funds’

We propose a time-varying coefficient model in order to analyze the dynamic in estimated alpha and betas. We showed that the proportions of “skilled” funds are higher with our model than with a static linear factor model. Indeed, our time-varying coefficient model captures the dynamic part of alpha that reflects the dynamic strategy that we can find within Hedge Funds. Furthermore this model is not only capable of looking into anticipation for Hedge Fund managers but is equally well suited for the analysis of beta exposure. We show that whatever the strategy, the increase in risk behavior is mainly concentrated on the credit spread risk factor and bond risk factor.

P. Tolonen (University of Oulu), J. Joenväärä (University of Oulu) – ‘Share Restrictions, Risk Taking and Hedge Fund Performance’

This paper examines the impact of share restrictions on the risk-taking and on the performance of hedge funds using the Hedge Fund Research (HFR) database. Share restrictions, in the form of longer lockup as well as notice and redemption periods, provide flexibility for the managers. Our results suggest that this flexibility allows hedge fund managers with lockup provision to take an excess risk, which is not compensated, when performance is measured as a unit of the risk taken by the manager. Specifically, we find that typical hedge funds with a lockup provision deliver 5.6-6.6% (3.8-5.4%) lower Fung and Hsieh (2004) appraisal ratios (Sharpe ratios) compared to their peers without a lockup provision. The results remain consistent even after controlling for various database biases, alternative risk and performance measures, and nonlinearities in hedge fund returns.

G. Weisang (Bentley University), T. Roncalli (Lyxor AM and University of Evry) – ‘Exploring non linearities in Hedge Funds: An application of Particle Filters to Hedge Fund Replication’

Of the three main challenges of hedge fund replication, only replication of the well-known nonlinearities of their returns remains undisputed. Recent advances in hedge fund replication using factor models have shown that the use of Bayesian filters helps greatly in capturing the dynamic allocation of assets of hedge fund managers, particularly in the case of aggregates of hedge funds [33, 35]. Furthermore, from a practitioner’s perspective, access to the alpha of the funds can be provided on top of capturing the dynamic exposures by adopting a core/satellite approach to building the replication portfolio [35]. In this working paper, we explore tentatively the solutions that Bayesian filters could provide to the replication of hedge fund nonlinearities. Although, not entirely successful, our results show promises and open new grounds for the field.