

QUANTVALLEY /FDR RESEARCH INITIATIVE



2018

Activities and Events organized by the Research Initiative (QMI) – ANNUAL REPORT

This document describes the activities organized by the Quantitative Management Research Initiative (QMI) during its fifth year of existence.

For internal use only.

Draft January 2019

Table of Contents

1. INTRODUCTION	5
1.1. The objectives of the QMI.....	5
1.2. Research axes of the QMI	5
1.2.1. Artificial Intelligence	5
1.2.2. Risk & Crowding	6
1.2.3. Implementation challenges	7
1.3. The QMI's organization	8
The steering committee	8
The Advisory Board	8
The secretariat	8
The QMI's researchers	8
The QMI's associate researchers	12
3. RESEARCH ACTIVITIES.....	13
3.1. Research Publications.....	13
3.1.1. Working papers.....	13
3.1.2. Published Papers	16
3.1.3. PhD defense and placement	17
4. RESEARCH EXPOSURE AND DIFFUSION.....	17
4.1. Conference and seminar participation.....	17
4.1.1. 12th CSDA International Conference (CFE 2018)	17
4.1.2. 2nd International Conference on Econometrics and Statistics (EcoSta 2018)	18
4.1.3. Seminar and conference participations.....	18
4.3. Annual events	20
4.4. Website	23

QUANTVALLEY /FDR RESEARCH INITIATIVE "QUANTITATIVE MANAGEMENT INITIATIVE (QMI)"

1. INTRODUCTION

Hosted within the Fondation du Risque (FdR) and with the support of the Institut Louis Bachelier (ILB), the work conducted within the framework of this Research Initiative is principally carried out by teams from the University Paris-Dauphine and the ENSAE (Ecole Nationale de la statistique et de l'administration économique). It benefits from partnerships with ADDSTONES GFI and La Française Investment Solutions (LFIS).

1.1. The objectives of the QMI

In the post-financial-crisis context, Quantitative Management professionals from the French Financial sector came together in 2010 to create QuantValley to promote Quantitative Finance and its benefits in terms of research, risk management and value creation for investors. The association was joined by GFI and UBS, and thanks to their support, the Quantitative Management Initiative (QMI) was born in early 2012. Today, the Quantitative Management Initiative (QMI), who is supported by ADDSTONES GFI and LFIS, is investing even more in the promotion of research and the development of interactions between the academic world and the Professional world of Quantitative management and is structured around the following themes:

- Developing quantitative research applied to asset management;
- Facilitating knowledge transfer between academic environments and asset management agents;
- Responding to the research issues of various private partners;
- Encouraging collaboration with one or more companies that are leaders in fields relating to quantitative management;
- Promoting the image of asset management based on quantitative approaches;
- Increasing and consolidating the high level of excellence by organising reflexion, research and training activities on an international scale relating to one or more themes of general interest;
- Reflecting on the evolution of regulation pertaining to asset management.

1.2. Research axes of the QMI

Amongst the research areas of most interest to the QMI are:

1.2.1. Artificial Intelligence

Statistical Signal Processing

Application of signal treatment to the estimation of factorial models, the detection of outliers, the filtering of trends and the robust estimation of Kalman models is an active research field of the IdR QMI. The robust Kalman filter is in particular used in a project aiming to filter the leverage of Real Estate Private Equity funds from reported NAV. These funds are reporting on a quarterly basis, and the use of classic Kalman filter produces in general poor results in this specific context.

Serge Darolles is working with his PhD Student Charles Chevalier on statistical approaches allowing to detect common trends in different times series. This topic is particularly relevant when the objective is to allocate money to a portfolio of different trends following systems. The risk of this strategy is then linked to the probability of observe simultaneously breaks in trends characterizing different markets. The project related to this research will be exposed in a research papers programmed in 2019.

Big data, machine learning and the new sources of information (Google, Twitter)

Two working papers by D.E. Allen, M. McAleer, and A. Singh are focused on Big Data. E. Benhamou has started a PhD thesis on deep learning applied to finance. He already has several working papers related to this area of research. Eric Benhamou, Serge Darolles and Gaëlle Le Fol are working on a project on "Illiquidity in Risk Analysis and Large dimensions: an application to Mutual Funds". The idea is to propose risk measures that not only take into account the investment of a funds as well as the investments of other funds that use the same risky assets. They received a grant from Institut Europlace de Finance in 2018 to conduct that project. They also participated to a call for expression of interest by the French government (Appel à Manifestation d'intérêt) on data collection for artificial intelligence.

Finally, Serge Darolles, Gaëlle Le Fol, and her PhD Student Béatrice Sagna with another co-author are working on volume prediction (univariate and multivariate) models using machine learning method. Their first results show that machine learning technics outperform ARMA and SETAR specification both in and out of sample.

A « Quantitative Investing » session leaded by Gaëlle Le Fol and Serge Darolles, Members of the QMI has been organised at the Computational Financial Econometrics (CFE) conference in Pisa in December 2018 (see past conferences).

Momentum risk premia

Serge Darolles is working with his PhD Student Charles Chevalier on the characterization of a Multi-asset Trend Following Risk Premia that can be used to explain the cross-sectional dispersion observed in the CTA space. The corresponding risk factor can be used to improve the explanatory power of the linear factor models generally used to analyse hedge fund portfolios.

1.2.2. Risk & Crowding

Risk disaggregation and portfolio allocation

A change in the structure of a fund's client base affects the potential mismatch between the liquidity of its assets and liabilities. An asset/liability approach for liquidity management is therefore critical and requires a client behaviour model. Serge Darolles, Gaëlle Le Fol and Ran Sun are working on investor's behaviour and the consequences on funding liquidity risk. This research has been presented at several seminars and international conferences (see Seminar and conference).

Contagion and funds flows

Mardi Dungey and Eric Renault had received a funding of 10,000 euros by the QMI for their project on contagion modelling (See [Recently Funded](#) and [Completed projects](#)). Identifying contagion effects during periods of financial crisis is known to be complicated by the changing volatility of asset returns during periods of stress. To untangle this, they propose a GARCH (generalized autoregressive conditional heteroskedasticity) common features approach, where systemic risk emerges from a common factor source (or indeed multiple factor sources) with contagion evident through possible changes in the factor loadings relating to the common factor(s). This research has now been published in Journal of Applied Econometrics in 2018 (See [Publications](#)).

Serge Darolles, Gaëlle Le Fol and her PhD Student Béatrice Sagna work with another co-author on some multivariate volume prediction methods applied to the circulation of liquidity within a portfolio. This research has been presented at the CFE 2018 meeting in December 2018.

Serge Darolles, Gaëlle Le Fol and Ran Sun work with another co-author on fund flows predictions, clustering effects and over-dispersion with implications on fund liquidity risk. This research has been presented at the International Finance Meeting (AFFI) as well as at the Financial Time Series workshop both in Paris in December 2018.

Estimation risk for portfolios

Several methods are compared to jointly estimate the market risk of the returns of portfolios and evaluate the estimation risk. The comparison relies on asymptotic theory and numerical experiments.

This research, jointly conducted by Christian Francq and Jean-Michel Zakoian, has been presented at several seminars and international conferences (see Seminar and conference).

Systemic risk and stress exercises

Several researches have been conducted by Christian Gouriéroux to detect the systemic risks present in a portfolio, define rating for systemic risk, or construct scenario generators to measure the impact of systemic shocks.

Alternative Risk Premia

Given the sharp increase of the number of alternative risk premia discovered by academics and practitioners, several issues need to be addressed: the factor construction methodologies, the consequences for portfolio diversification, the persistence of the alternative risk premia.

Regarding the first two issues, Marie Lambert et al. are working on construction rules of risk factors and the design of smart beta strategies. A proper methodology to stratify stock universe into style buckets is key for the design of persistent risk factors, asset allocation and performance attribution. The two working papers have been presented at academic and practitioner conferences and seminars (FMA – San Diego, Quant Vision Summit, AFFI, ... see seminar and conferences). Marie Lambert et al. also works on the design of alternative risk premia capturing non-linear payoffs. The working paper on the gamma trading of hedge funds have also been presented at several conferences and seminars.

Regarding the persistence of the alternative risk premia, Serge Darolles and Marie Lambert are working on the economic cycle of alternative risk premia and the change in business model from active to passive management for those investment strategies. Serge Darolles has presented the paper at Ecosta 2018 in Hong Kong and at the AFG in November 2018.

1.2.3. Implementation challenges

Listed market liquidity

Looking at serial correlations, Serge Darolles, Gaëlle Le Fol and Ran Sun are working on hedge funds liquidity and managers' skills (See Working Papers 2018).

Gaëlle Le Fol is leading a project that focuses on multivariate models to analyse the liquidity structure of a large panel of assets. Serge Darolles, Béatrice Sagna – PhD student under Gaëlle Le Fol's supervision and Christian Brownlees from Pompeu Fabra are part of that project. Fabrice Riva is for his part, with two co-authors, working on ETF liquidity (See Working papers 2018).

In their project "Stock Market Liquidity and Trading Costs of Asset Pricing Anomalies", Tamara Nefedova, with some co-authors, uses transaction-level data from Ancerno to investigate implicit cost dynamics and estimate transaction costs associated with trading asset-pricing anomalies. They find that the related costs are considerably lower than documented by previous studies.

Algo and/or High frequency trading

Optimisation of the VWAP (Volume Weighted Average Price) replication algorithms, link between the speed of placing orders on the market and the arrival of information, liquidity trade-offs, maximum trading capacity are areas of research in which QMI is regularly investing.

Pas research showed that investors are acting strategically – by slicing their orders - to avoid being picked-off by HFTs. Doing so, they slow down the propagation of information in the prices. Again, this research has been presented several times in international conferences (see [Annual report 2017](#)).

Serge Darolles, Gaëlle Le Fol, and Béatrice Sagna with another co-author are working on basket VWAP strategies.

Albert Menkveld and Vincent van Kervel are working on HFT leaning with or against the wind of large institutional orders. They find that HFTs initially lean against these orders but eventually change direction and take position in the same direction for the most informed institutional orders. This research was initially funded by the 2013 QMI call for project and is forthcoming in the Journal of Finance (see [Annual Report 2013](#), and Published papers page 17)

1.3. The QMI's organization

The steering committee

The steering committee reviews, monitors and prioritizes major QMI projects.

Scientific Director

Gaëlle Le Fol, Professor, Université Paris-Dauphine and CREST

General Secretary

Fabrice Riva, Professor, Université Paris - Dauphine

Researchers from l'ENSAE and Université Paris-Dauphine

Serge Darolles, Professor, Université Paris -Dauphine

Jean-Michel Zakoïan, Professeur, CREST-ENSAE ParisTech

Other Members

Christian Gouriéroux, Professor, Université de Toronto

The Advisory Board

The Advisory board assists the Steering Committee in its supervising tasks over the activities of the project. The advisory Board members are:

Representing d'ADDSTONES-GFI : Pascale Gimet-Joussier

Representing La Française IS : Sofiène Haj-Taieb

Representing l'ENSAE ParisTech : Didier Janci

Representing the Université Paris-Dauphine : Bruno Bouchard

Representing the Risk Fondation: Jean-Michel Beacco

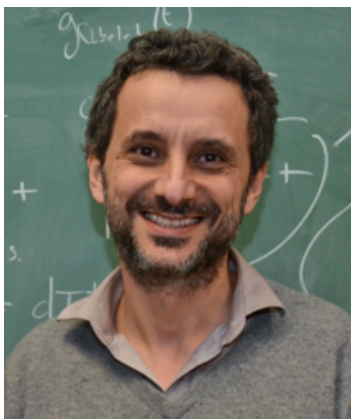
Qualified Person: Charles-Albert Lehalles (CFM)

International Experts: Michel Crouhy (Natixis), René Garcia (Univ. Montreal & TSE), Michael Rockinger (University of Lausanne), and Ronnie Sadka (Boston College)

The secretariat

Mathilde Repellin, the secretary of QMI can be contacted at contact@qminitiative.org or Mathilde.repellin@dauphine.psl.eu or by telephone: +33 1 41 16 76 19.

The QMI's researchers



E. Bacry, CNRS and Ecole Polytechnique



C. Gouriéroux, Toronto University



E. Jurczenko, EHL



G. Le Fol, Université Paris - Dauphine



S. Darolles, Université Paris - Dauphine



G. Mero, Université de Cergy-Pontoise



E. Jouini, Université Paris - Dauphine



T. Nefedova, Université Paris - Dauphine



M. Lambert, HEC Liège (Liège Université)



F. Riva, Université Paris – Dauphine



J.-M. Zakoïan, CREST and University Lille 3.



M. Zoican, Toronto University



A. Bécam, PhD Student, Université Paris-Dauphine



E. Benhamou, PhD Student, Université Paris-Dauphine



C. Chevalier, PhD Student, Université Paris-Dauphine



S. Fries, PhD Student, ENSAE-Paristech & CREST



T. Ran Sun, PhD Student, Université Paris-Dauphine



B. Sagna, PhD Student, Université Paris- Dauphine

The QMI's associate researchers



Akindynos-
Nikolaos Baltas,
Visiting
Researcher,
Imperial College,
Quantitative
Analyst at UBS
Investment Bank



D.E. Allen, Econometric
Institute, Erasmus
School of Economics,
Erasmus University
Rotterdam, The
Netherlands.



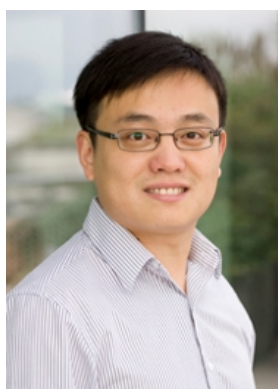
Mardi Dungey, School
of Economics and
Finance, University of
Tasmania, Australia



D. Keenan,
Professor of
Finance, Université
de Cergy-Pontoise



Robert Kosowski,
Professor, Center for
Hedge Fund Research
& Risk Management
Laboratory at
Imperial College
Business School



Dong Lou, Financial
Markets Group,
London School of
Economics



M. McAleer, Professor of
Quantitative Finance,
Econometric Institute,
Erasmus School of
Economics, Erasmus
University Rotterdam



Albert Menkveld,
Professor, VU
University of
Amsterdam



Christopher Polk,
Professor, Financial
Markets Group, London
School of Economics



Abhay Kumar Singh,
PhD (Finance),
MBA, B. Tech (I T)



Eric Renault, Professor,
Brown University, USA



Vincent L. van Kervel,
VU University of
Amsterdam

3. RESEARCH ACTIVITIES

This research initiative aims to be a means of exchange and reflexion where research themes emerge naturally, and become the starting point of research articles in the best international journals. The QMI must also be able to create a research community around themes of interest to management companies by calling for research projects nationally and internationally and by reinforcing the QMI member teams by recruiting research assistants and publishing doctoral contracts.

3.1. Research Publications

- Date: 2018
- Themes: Quantitative Management

3.1.1. Working papers

Allen, D.E., McAleer, M. and Singh A.K., An entropy-based analysis of the relationship between the DOW JONES Index and the TRNA Sentiment series. Working paper.

Allen, D.E., McAleer, M. and Singh A.K., Daily Market News Sentiment and Stock Prices. Working Paper.

Atif, J., A. Auger, E. Benhamou, and R. Laraki, A new approach to learning in Dynamic Bayesian Networks (DBNs). Working Paper.

Atif, J., A. Auger, E. Benhamou, and R. Laraki, A discrete version of CMA-ES. Working Paper.

Atif, J., A. Auger, E. Benhamou, and R. Laraki, , Operator norm upper bound for sub-Gaussian tailed random matrices, Working Paper.

Auray,S., and C., Gouriéroux: Procyclicité des régulations Financières, CREST Working Paper.

Baltas A.-K., and R. Kosowski, Momentum Strategies in Futures Markets and Trend-following Funds. Working paper.

Becam, A., Darolles. S. and Le Fol, G., Serial correlation and time-varying liquidity in the hedge fund industry, QMI Working paper.

Becam, A., Darolles. S. and Le Fol, G., Smoothed Returns and Managers' skills, QMI Working paper.

Benhamou, E., A few properties of sample variance, Working paper.

Benhamou, E., Connecting Sharpe ratio and Student t-statistic, and beyond, Working paper.

Benhamou, E., Gram Charlier and Edgeworth expansion for sample variance, Working paper.

Benhamou, E., Kalman filter demystified: from intuition to probabilistic graphical model to real case in financial markets, Working paper.

Benhamou, E., T-statistic for Autoregressive process, Working paper.

Benhamou, E., S. Darolles and G. Le Fol, Risk Analysis and Large Dimensions: Applications to mutual Funds, Project selected by Europlace Institut of Finance, € 10,000 grant.

Benhamou, E., and B. Guez, Incremental Sharpe and other performance ratios, Working paper.

Benhamou, E., B. Guez, and N. Paris, Three remarkable properties of the Normal distribution, Working paper.

Benhamou, E., and V. Melot, Seven proofs of the Pearson Chi-squared independence test and its graphical interpretation, Working paper.

Benhamou, E., and D. Satiel, Trade Selection with Supervised Learning and OCA, Working paper.

Benhamou, E., and D. Satiel, Feature selection with optimal coordinate ascent (OCA), Working paper.

Boloorforoosh, A., P. Christoffersen, M. Fournier, and C. Gouriéroux, Beta Risk in the Cross-Section of Equities, Working paper, Review of Financial Studies R&R.

Borgy, V., Idier, J. and Le Fol, G., Liquidity Problems in the FX market: Ask for the BIL, Working paper SSRN.

Brière, C.-A. Lehalle, T. Nefedova and A. Raboun, "Stock Market Liquidity and the Trading Costs Factors", working paper.

Calamia, A., Deville L. and F. Riva, The Provision of Liquidity in ETFs: Theory and Evidence from European Markets, Working Paper.

Calvez L., V. Czellar, and C. Gouriéroux, "Structural Dynamic Analysis of Systematic risk", submitted *Journal of Finance*.

Chevalier, C. and S. Darolles, Trends everywhere? The case of hedge fund styles, Working paper.

Darolles, S., Dubecq, S., and C., Gouriéroux. Contagion analysis in the banking sector. Working paper.

Darolles, S., Dudek, J. and Le Fol, G., MLiq a Meta Liquidity Measure, working paper Université Paris - Dauphine.

Darolles, S., Gagliardini, P., and C., Gouriéroux, Survival of Hedge Funds: Frailty vs Contagion, Working paper.

Darolles, S., G. Le Fol and G. Mero, Timing the Size Risk Premia, Working paper.

Darolles, S., G. Le Fol and R. Sun, Liquidity Risk and Investor Behavior: Issues, Data and Models", Working paper.

Darolles, S., G. Le Fol Y. Lu and R. Sun, A Self-Exciting Model for Mutual Fund Flows: Investor Behaviour and Liability Risk, presented at the 2018 AFFI Winter Meetings

Darolles S., and G. Roussellet, Hedge fund portfolio management with illiquid assets, working paper.

Darolles, S. and Vaissié, M., The Benefits of Dynamic Risk Management: Mitigating Downside Risk Without Compromising Long-Term Growth Prospects, Working paper SSRN.

Deville, L., J. Raposo, and F. Riva, "Event studies and (endogenous) zero returns", working paper.

Duvaut, P. and Jay, E., ODERIM (Outlier Detection for Risk Management), Mimeo.

Fays, B., G. Hübner, and M. Lambert, "Gamma Trading Skills in Hedge Funds". Working paper.

Fays, B., G. Hübner, and M. Lambert, "Factoring Characteristics into Returns: A Clinical Approach to Fama-French Portfolio Decomposition", Working paper.

Fays, B., M. Lambert, and P. Nicolas, "Smart Equity Investing: Implementing Risk Optimization Techniques on Strategic Beta Portfolios". Working paper.

Francq, C., and J.M., Zakoian, Joint Inference on Market and Estimation Risks in Dynamic Portfolio", Working paper.

Francq, C., and J.M., Zakoian, Expected Shortfall Estimation in Volatility Models", Working paper.

Gagliardini, P., Gourioux, C., and M., Rubin: "Positional Portfolio Management", submitted *Journal of Financial Econometrics*.

Gatheral J., T. Jaisson, and M., Rosenbaum, Volatility is rough, Working paper.

Gourioux, C.: "The Least Impulse Response Estimator for Stress Test Exercises", CREST-DP.

Gourioux, C., and J.C., Heam: "Funding Liquidity Risk in a Regulatory Perspective", submitted *Journal of Banking and Finance*.

Gourioux, C., and J., Jasiak: "A Stochastic Tree with Application to Bubble Modelling and Pricing", CREST-DP.

Gourioux, C., and J., Jasiak: "Dynamic Deconvolution of Independent AR(1) Sources", Working paper.

Gourioux, C., Jasiak, J., and A., Monfort: "Stationary Dynamic Equilibria in Rational Expectations Models", R&R, *Journal of Econometrics*.

Gourioux C., and Y. Lu, "Least Impulse Response Estimator for Stress Test Exercises", R&R *Journal of Banking and Finance*.

Gourioux, C., Monfort, A., and J.P., Renne: "Disastrous Defaults", CREST-DP.

Gourioux, C., Monfort, A., and J.P., Renne: "Group Transformation Models : A New Interpretation of Intercept in Semi-Parametric Econometrics", submitted *Econometric Theory*.

Gourioux, C., and Y., Lu: "Long Term Care and Longevity", R&R, *Journal of Econometrics*.

Gourioux, C., and Y., Lu: "Staying at the Zero-Lower Bound with Embedded Markov Chain", CREST-DP.

Gourioux, C., and A., Monfort: "Economic Scenario Generators and Incomplete Markets", CREST DP.

Haas M. D. and M. A. Zoican, Beyond the Frequency Wall: Speed and Liquidity on Batch Auction Markets, Working paper. This paper received the [Joseph de la Vega Prize 2016](#).

Haas M. D., M. Khapko and M. A. Zoican, Speed and Learning in High-Frequency Auctions, Working Paper.

Huang W., C.-A. Lehalle, and M. Rosenbaum, How to predict the consequences of a tick value change? Evidence from the Tokyo Stock Exchange pilot program, Working paper.

Jurczenko E., T. Michel and J. Teiletche, "Generalized Risk-Based Investing", Working Paper SSRN.

Jurczenko E. and J. Teiletche, "Risk-based Investing: but what Risk(s)", Working paper.

Jurczenko E. et J. Teiletche, "Risk-Based Allocation for Illiquid and Alternative Investments", 21 pages.

Khapko M. and M. Zoican, How Fast Should Trades Settle?, Working Paper SSRN.

Lou D., and C. Polk, The Booms and Busts of Beta Arbitrage: Measuring the extent of the Low-Beta Crowd. Working paper.

Menkveld, A., E. Pagnotta and M. Zoican, "Does Central Clearing affect Price Stability? Evidence from the Nordic Equity Markets", Working paper and SSRN 2350762, Revise and resubmit at the Journal of Financial Economics.

Mero G, "Measuring Hedge Fund Performances: A Markov Regime Switching with False Discoveries Approach", Working Paper.

Nefedova T., "Tippers and tippees: Brokers' pre-release of price-sensitive information to their VIP clients", Working paper.

Rosenthal D. W. R., Trading-Related Skill Across Investment Funds, Mimeo.

Zoican M., Are Zero-Fee Funds Free?, Working Paper.

3.1.2. Published Papers

Achab M., E. Bacry, J.-F. Muzy and M. Rambaldi, Analysis of order book flows using a nonparametric estimation of the branching ratio matrix, Quantitative Finance Volume 18, Issue 2.

Bacry E., Disentangling and quantifying market participant volatility contributions, forthcoming in Quantitative Finance.

Bizri M., M. Bozec, N. Leconte and G. Le Fol, Les actifs illiquides : une oasis dans le désert du rendement ?, Revue Banque, Juillet 2018, 25-28.

Cerovecki, C., Hörmann S., Francq, C. and J.M. Zakoïan, Functional GARCH models: the quasi-likelihood approach and its applications. Forthcoming in Journal of Econometrics.

Darolles S., La problématique de l'investissement à long terme et du risque de liquidité, Option Finance, 17 Décembre.

Darolles S., C. Francq and S. Laurent. Asymptotics of Cholesky GARCH Models and Time-Varying Conditional Betas, Journal of Econometrics, 204, Issue 2, June 2018, 223-247

Darolles S., G. Le Fol, Y. Lu and R. Sun, Liquidity Risk and Investor Behavior: Issues, Data and Models", Working paper, R&R Journal of Multivariate Analysis.

Dungey, M. and E. Renault, Identifying Contagion. Journal of Applied Econometrics, 33, Issue 2, 227-250.

Eisele A., T. Nefedova, G. Parise and K. Peijnenburg, Trading Out of Sight: An Analysis of Cross-Trading in Mutual Fund Families, forthcoming in Journal of Financial Economics.

Francq, C., Wintenberger, O. and J.M. Zakoïan, Goodness-of-fit tests for Log-GARCH and EGARCH models, Test 27, 27-51.

Francq, C. and J.M. Zakoïan, Estimation risk for the VaR of portfolios driven by semi-parametric multivariate models. Journal of Econometrics 205, 381-401.

Fries, S. and J.M. Zakoïan, Mixed Causal-Noncausal AR Processes and the Modelling of Explosive Bubbles. Forthcoming in Econometric Theory.

Gagliardini, P., and C., Gouriéroux, Identification by Laplace Transforms in Panel or Time Series Models with Unobserved Stochastic Dynamic Effects, Forthcoming Journal of Econometrics.

Gouriéroux, C., and J., Jasiak, Misspecification of Causal and Noncausal Orders in Autoregressive Processes, Journal of Econometrics, 205, Issue 1, 226-248.

Gouriéroux C., and Y. Lu, Negative Binomial Autoregressive Process with Stochastic Intensity, Forthcoming in Journal of Time Series Analysis.

Gouriéroux, C., and A., Monfort, Composite Indirect Inference with Application to Corporate Risks, Econometrics and Statistics, 7, 30-45.

Gouriéroux, C., A., Monfort, and J.-M. Zakoïan, Pseudo Maximum Likelihood and Groups of Transformations, Econometrica 87, 327-345.

Hübner, G., and M. Lambert, Performance sharing in risky portfolios: The case of hedge fund returns and fees. Forthcoming in Journal of Portfolio Management.

Jurczenko E. and J. Teiletche, Active Risk-Based Investing, Journal of Portfolio Management, 44, Issue 3, 55-65.

Menkveld, A. and V. van Kervel, High-Frequency Trading around Large Institutional Orders. Forthcoming in the Journal of Finance.

Nefedova T., and G. Pratobevera, Do Institutions Play Hide-and-Sell in the IPO aftermarket?, Working paper. Forthcoming in Journal of Corporate Finance.

Riva F., Quel Avenir pour les Initial Coin Offerings?, Revue Banque, Juillet 2018, 17-20.

Tennert J., M. Lambert, and H.-P. Burghof, Moral Hazard in High-Risk Environments: Optimal Follow-on Investing in Venture Capital Finance. Venture Capital 20(4), 323-338.

3.1.3. PhD defense and placement

Sarah Ain Tommar, « Trois essais en Private Equity », in December 10, 2018, under the supervision of Serge Darolles. Sarah Ain Tommar is actually doing the international Job Market.

Adrien Bécam, « Mesure de performance et liquidité dans l'industrie des hedge funds », in December 11, 2018, under the supervision of Gaëlle Le Fol. Adrien Bécam is Quantitative risk analyst at the Banque de France.

Sébastien Fries, « Anticipative alpha-stable linear processes for time series analysis: conditional dynamics and estimation », in December 4, 2018, under the supervision of Jean-Michel Zakoian. Sébastien Fries is actually doing the international Job Market.

Ran Sun, « Risque de liquidité dans l'univers des fonds ouverts », in August 29, 2018, under the supervision of Gaëlle Le Fol. Ran Sun is looking for a job as a Quant in China.

Hector Chan (ongoing), under the supervision of Serge Darolles.

Charles Chevalier (ongoing), under the supervision of Serge Darolles.

Béatrice Sagna (ongoing), under the supervision of Gaëlle Le Fol.

Arthur Stalla-Bourdillon (ongoing), under the supervision of Gaëlle Le Fol.

4. RESEARCH EXPOSURE AND DIFFUSION

Over and above research production, the QMI aims to distribute quantitative management academic research throughout the scientific community but also towards quantitative management professionals (knowledge diffusion). To this end, the QMI's research will be presented in international conferences, within the framework of an annual conference addressed to academics and professionals. Furthermore, training (research applications) will be developed and the website will propose research articles and webinars than put that research into practice.

4.1. Conference and seminar participation

4.1.1. 12th CSDA International Conference (CFE 2018)

Keynote address: **C. Gouriéroux**, University of Toronto, CREST and Member of the QMI, Group Transformation Models : A New Interpretation of Intercept in Semi-Parametric Econometrics

Organization of one session at the Computational and Financial Econometrics, Pisa, December 2018
- Quantitative Investing, Session CO458.

G. Le Fol Chairman and organizer and **S. Darolles**, Organizer, Université Paris-Dauphine, Members of the QMI

- Abnormal tone and abnormal returns: An event study analysis, **David Ardia**, University of Neuchatel, Switzerland
- Machine learning models applied in trading and their potential issues, **Rafael Molinero**, Molinero Capital Management, United States
- Illiquid asset and portfolio management, **Gaëlle Le Fol**, Université Paris - Dauphine, CREST, Member of QMI
- Community detection in large vector autoregressions, **Gudmundur Gudmundsson**, Aarhus University, Denmark

- Multivariate volatility models and Risk, Session CO294

J.-M. Zakoian, Chairman and organizer, CREST, Member of the QMI

- Volatility estimation when observations are missing, **Genaro Sucarrat**, BI Norwegian Business School, Norway
- A multivariate dynamic mixture model for discrete price changes at high frequency, **Leopoldo Catania**, Aarhus BBS, Denmark
- Asymptotics of Cholesky GARCH models and time-varying conditional betas, **Christian Francq**, CREST and University Lille III
- Virtual historical simulation for estimating the conditional VaR of large portfolios, **Jean-Michel Zakoian**, CREST, Member of QMI

4.1.2. 2nd International Conference on Econometrics and Statistics (EcoSta 2018)

Organization of one session at the International Conference on Econometrics and Statistics, Hong Kong, 2018.

- Alternative Risk Premia, Session EO308

S. Darolles, Organizer, Université Paris-Dauphine, Members of the QMI

- Alternative Risk Premia Title: Alternative risk premia, **Guillaume Monarcha**, Orion Financial Partners
- Deep Learning alpha, **Guanhao Feng**, City University of Hong Kong
- Volatility uncertainty and the cross-section of option returns, **Jie Cao**, Chinese University of Hong Kong
- Attention Global Warming, **Zhenyu Gao**, Chinese University of Hong Kong
- Dynamic Analysis of AR, **Serge Darolles**, Université Paris - Dauphine, CREST, Member of QMI

4.1.3. Seminar and conference participations

QMI's researchers have presented their work at several conferences and seminars:

"Asymptotics of Cholesky GARCH Models and Time-Varying Conditional Betas," S. Darolles, C. Francq and S. Laurent.

- Financial Econometric Conference, Toulouse School of Economics, 4-5 May;
- FERM 2018 Conference, Shanghai, 13-15 June;
- Conference on New Developments in Econometrics and Time Series, Copenhagen, September 20-21.

"A Self-Exciting Model for Mutual Fund Flows: Investor Behaviour and Liability Risk", S. Darolles, G. Le Fol, Y. Lu and R. Sun

- 16th Paris December International Finance Meeting, December 20, Paris, France.
- Financial Time Series Workshop, CREST-ENSAE, December 3, Paris

“ARP economic cycle: From active and passive management,” S. Darolles, M. Lambert and G. Monarcha

- 2nd Econometrics and Statistics Conference, City University of Hong Kong, June 19-21;
- Club « Techniques Quantitatives » de l'Association Française de Gestion, Novembre 29, Paris

"Benchmarking the Market Timing Skills of Hedge Funds: An Adjustment from Option Greeks", Fays, B., G. Hübner, and M. Lambert

- Poster session presented at 10th Annual Hedge Fund and Private Equity Research Conference, January 18, Paris, France.

“Disastrous Defaults”, C. Gouriéroux, (and co-authors)

- House of Finance Days, Regulation and Systemic Risk, Paris Dauphine University, March, 21.
- Financial Risk Forum, Paris, March.
- Financial Econometric Conference, Toulouse School of Economic, 4-5 May.
- Quant. Finance and Financial Econometrics (QFFE), Aix-Marseille, 28-31 May.
- SOFIE conference, Lugano, 11, June.
- Conference International Association for Applied Econometrics, Montreal, 26-29, June.
- Credit Conference, Venice, September, 27-28.
- Advance in Applied MacroFinance, Istanbul, December, 3-4.

“Do hedge fund hedge? New evidence from volatility risk premia embedded in VIX options,” S. Darolles and A. Al Wakil

- 5th Empirical Finance Workshop, ESSEC Business School, 28 March 2018

"Do Institutions Play Hide-and-Sell in the IPO aftermarket? ", T. Nefedova, and G. Pratobevera

- Hong Kong Polytechnic University, December 17-18, 2019
- Northern Finance Association Conference, September 21-23, 2019, Charlevoix, Canada
- SFI Research Days, June 2-4, 2019, Gerzensee, Switzerland

"Estimation of Hawkes processes - Applications to Finance", E. Bacry

- 12th International Vilnius Conference on Probability and Mathematical statistics, July 2-6, Vilnius, Lithuania.

"Estimation Risk for the VaR of Portfolios Driven by Semi-Parametric Models, " C. Francq and J.M. Zakoian

- 11th Financial Risks International Forum. March 2018, Paris France
- Mathematical and Statistical Methods for Actuarial Sciences and Finance. April 2018, Madrid Spain
- Various studies of statistical analysis for asymptotic theory, circular or time series, October 2018, Nagoya (Japan)
- Heidelberg, Financial Econometric Conference.

"Factoring Characteristics into Returns: A Clinical Approach to Fama-French Portfolio Decomposition", M. Lambert

- Finance Research Seminar (Paris Dauphine), March 15, Paris, France

"Factor methodologies matter", M. Lambert

- Quant Vision Summit, October 4, Paris, France

"Gamma Trading Skills in Hedge Funds" Fays, B., G. Hübner, and M. Lambert

- Research seminar, Québec, Canada, May 3.
- HEC / MCGILL SPRING FINANCE WORKSHOP 2018, Montebello, Canada

"Illiquid asset and portfolio management" C. Brownlees, S. Darolles, G. Le Fol, and B. Sagna

- CFE, 14-16 December, 12th International Conference on Computational and Financial Econometrics (CFE 2018), Pisa.

"Measuring Hedge Fund Performances: A Markov-regime-switching with false discoveries approach" G. Mero

- European Financial Management Conférence, 2018 Annual Meetings, June 27-30, Milan

"Noncausal Vector Autoregression : Representation, Identification and Semi-Parametric Estimation," C. Gouriéroux, and J.M. Zakoian

- June 2018, Lugano (Switzerland) SoFiE Conference, 11th Annual Meeting. Keynote speaker.

"On the Importance of Factor Construction and Methodology Choice" M. Lambert

- TES 2018 (Trackinsight Summit 2018), Paris, France.

"Robust Test of the Martingale Hypothesis", C. Gouriéroux and J. Jasiak

- Canadian Econometric Study Group, Ottawa, October, 19-21.

"Stock Market Liquidity and the Trading Costs Factors", M. Brière, C.-A. Lehalle, T. Nefedova and A. Raboun

- Quant Vision Summit, October 4, Paris

"The impact of external market conditions on real options valuation" M. Lambert

- 11th Financial Risks International Forum - Paris, March 27, Paris, France

"Tippers and tippees: Brokers' pre-release of price-sensitive information to their VIP clients", T. Nefedova

- Presented at 2017 FMA Annual Conference, October 11-14, Boston.

"Trends everywhere? The case of hedge fund styles", C. Chevalier and S. Darolles

- Quantitative Finance and Financial Econometrics (QFFE), May 31, Marseille.
- Econometric Research in Finance Workshop (ERFIN), September 14, Warsaw, Poland.
- 10th French Econometrics Conference (FEC) – poster- November 29-30, Paris.
- International Conference on Computational and Financial Econometrics (CFE), December 14, Pisa, Italy.

"Virtual Historical Simulation for estimating the conditional VaR of large portfolios.", J.M. Zakoian

- Quant. Finance and Financial Econometrics (QFFE). Keynote speaker. May 2018, Marseille France
- Computational and Financial Econometrics (CFE'18), December 2018, Pisa, Italy.

4.3. Annual events

Every year, the QMI organizes some events. Intended for quantitative management experts – academics, professionals and journalists – it will aim to combine the research undertaken by members of the QMI, projects financed by the QMI and research by internationally renowned researchers, by organizing a guest session and presentation sessions for research articles. A roundtable has also been organized in which academics, journalists and professionals will be invited to take part in a debate.

However, this year we only had a roundtable.

Date, location: March 2018 (Paris)

- Themes: Quantitative Management

The QuantValley/Quantitative Management Initiative (QMI)'s first objective is to favor synergies between quantitative management firms, academia and market authorities in order to achieve excellence in research. To optimize the cooperation between professionals and researchers, the initiative organizes workshops and conferences with the support of its academic partners, Université Paris-Dauphine and ENSAE- the French National School of Statistics and Administration. The first QuantValley/QMI Annual Research Conference will explore and present new findings on the following topics: Statistical Signal Processing, Market Liquidity, High Frequency Trading, Contagion and Systemic Risk, Risk Parity, and more generally all subjects dealing with Portfolio and Risk Management.

Venue :

Université Paris – Dauphine
Place du Maréchal de Lattre de Tassigny, 75016 Paris



Les actifs illiquides : une oasis dans le désert du rendement ?



Université Paris-Dauphine, March 19, 2018

This year, the organizing committee wanted to gather the expert opinion on assets that are, by nature, illiquid. These assets are infrastructure projects, oil platforms, etc. This asset class, once reserved for highly specialized investors, now attracts traditional investors such as pension funds or insurers. Those investors facing historically low bond yields are turning to illiquid assets in search of higher returns.

Chairman: **Vincent PUCHE** (President, Insti7)

- **Pedro Antonio ARIAS**, Global Head of Real & Alternatives Assets, Amundi
- **Matthieu BARET**, Partner, Idinvest

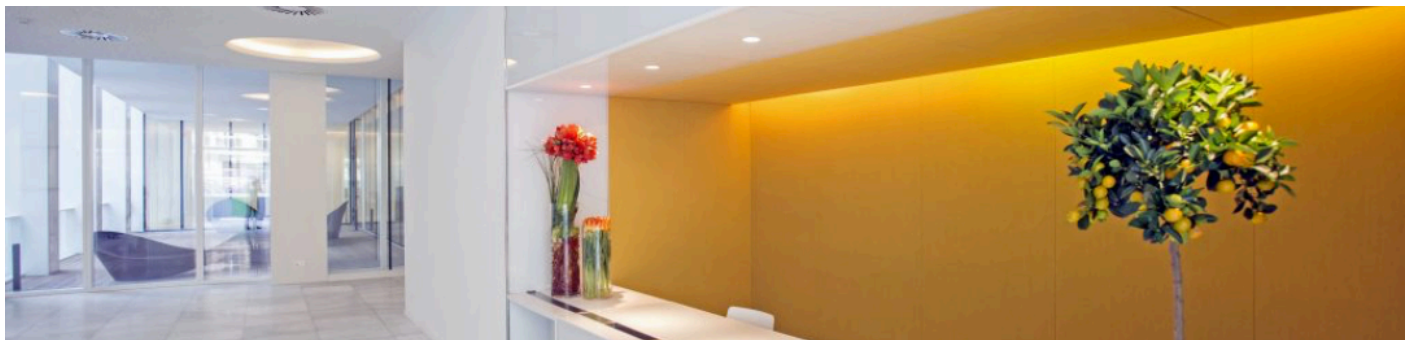
- **Antoine MASPETIOL**, Head of Private Debt, Aviva Investors
- **Olivier RENAULT**, Head of European Financial Institutions Solutions, Citi

Quant Vision summit

<https://www.quantvisionsummit.com>

This event is organized by LFIS and the Quantitative Research Initiative (QMI). It is an educational afternoon at the #Cloud Business Center, featuring the brightest quant minds from both the academic and the investing world to discuss and debate the future of quantitative investing.

Venue : #Cloud Business Center, **October 4, 2018**



QUANT VISION SUMMIT : <https://www.quantvisionsummit.com>

8:30–9:30: Welcome lunch and registration

1:30–1:40: Opening remarks

Sofiène Haj Taieb, LFIS

Gaëlle Le Fol, Université Paris – Dauphine and QMI

1:40–2:00: Keynote address

Leda Braga, CEO of Systematica Investments

2:50–2:00: Market Anomalies & Transaction Costs– Session 1

- **Marie Lambert** (HEC-Management School, University of Liège): "Factoring Characteristics into Returns : A Clinical Approach to Fama-French Portfolio Decomposition"

- **Charles-Albert Lehalle** (CFM & Visiting Researcher, Imperial College): "Implementation Costs of Factors: From Empirical Results to Generic Modelling"

2:50–3:20: Panel Session - Quantitative Approach - the Allocator Perspective

Moderator: **Toby Goodworth** (Managing Director and Head of Risk & Diversifying Strategies, bfinance)

- **Vladimir Spirito** (Head of Alternative Investments, ENPAM)
- **Max Townshend** (Investment Director, Head of Diversifying Strategies, LPP)
- **Barton Wallace** (Senior Investment Officer-Absolute Return, CN Investment Division)
- **Jean-Christophe Wibault** (Investment Manager, Aviva France)

3:20–4:00: FinTech Coffee Break

4:00–4:20: Guest speaker

Rama Cont, Chair of Mathematical Finance, University of Oxford & Recipient of the Louis Bachelier Prize in Applied Mathematics

4:20–5:10: Implementation Challenges in Factor Investing– Session 2

- **Antti Suhonen** (Aalto University): "A Decade of Risk Premia Investing: What Have We Learned"

- **Luc Dumontier** (LFIS): "Foreign Exchange Premia: An Attractive Diversifier Once Singular Risks are Addressed"

5:10–5:45: Panel Session - Quantitative Approach - the Allocator Perspective

Moderator: **Rob Mannix** (Editor, Risk.net Vladimir Spirito)

- **Emmanuel Bacry** (CNRS, University Paris-Dauphine, Ecole Polytechnique, Member of QMI)
- **Sylvain Forté** (CEO, SESAM)
- **Guillaume Garchery** (LFIS)
- **Eléonore de Vial** (Nephelai)

4.4. Website

The goal of the website is to become a showcase for the QMI and to encourage exchange between research and professionals by becoming for example a public library of research articles and computer code relating to quantitative management themes. Address: QMinitiative.org.

The website is a way to manage the annual conference and workshops registrations. Moreover, it is continuously updated.

