

Journées de la finance mathématique 2014
Mathematical Finance Days 2014

28 et 29 avril 2014
April 28-29, 2014

The logo for the Institut de Finance Mathématique de Montréal (IFM) features the letters 'I', 'F', and 'M' in a bold, blue, sans-serif font. The 'M' has a small white graphic element on its right side. A thick, orange, curved line sweeps from the bottom left, under the letters, and curves upwards to the right, ending behind the 'M'.

INSTITUT DE FINANCE MATHÉMATIQUE DE MONTREAL

Programme et résumés
Program and abstracts

Bonjour!

Bienvenue aux journées de la finance mathématique 2014.

Il y a déjà 16 ans que l'IFM2 a été créé par le gouvernement du Québec dans le but de soutenir la recherche et la formation de personnel hautement qualifié en finance mathématique. C'est avec grand plaisir que l'Institut organise cette année la cinquième édition de ce colloque, dans le but de resserrer les liens et les occasions de collaboration dans la communauté académique et professionnelle.

Nous espérons que vous trouverez votre participation des plus enrichissantes.

Nous vous convions également lundi à 17h00 à un cocktail qui nous permettra d'échanger entre participants dans une atmosphère détendue. Le prix du meilleur article sera décerné lors de ce cocktail.

Welcome to the Mathematical Finance Days 2014.

It now has been 16 years since the IFM2 was created by the government of Québec, in order to support research and formation of highly qualified personnel in mathematical finance. It is with great pleasure that the Institute organizes the fifth edition of this workshop, in order to increase networking and collaboration in our academic and professional community.

We wish all participants a very fruitful conference.

We also invite you on Monday at 5:00 pm to a cocktail to meet the other participants and enjoy a pleasant moment together. The best paper and award will be announced during this cocktail.

Les membres du comité organisateur
The members of the organizing committee

Emplacement des activités / *Activity locations*

HEC Montréal
3000, ch. de la Côte-Ste-Catherine
Montréal (Qc) Canada, H3T 2A7

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Fax : (514) 987-3071
ifm2@uqam.ca
<http://www.finmat14.uqam.ca/index.htm>

- ◇ Pauses café et petit déjeuner :
 - Tata communication 28 avril (rez-de-jardin)
 - Investissement Québec 29 avril (rez-de-jardin)
 - ◇ Séance plénière :
 - Amphithéâtre Banque nationale (rez-de-jardin)
 - ◇ Séances parallèles : 1^{er} étage
 - ◇ Déjeuners: Atrium (rez-de-jardin)
 - ◇ Cocktail : salon Deloitte (4^{ième} étage)
-
- ◇ *Coffee breaks and breakfasts:*
 - Room Tata communication, April 28 (Garden Level)
 - Room Investissement Québec, April 29 (Garden Level)
 - ◇ *Plenary Session:*
 - National Bank auditorium (Garden Level)
 - ◇ *Parallel Sessions: 1st floor*
 - ◇ *Lunches: Atrium (Garden Level)*
 - ◇ *Cocktail: Salon Deloitte (4th floor)*

Connexion au réseau sans fil/ *Connection to the wireless network*

Réseau : Evenements-HEC
Mot de passe / *Password*: lab14HEC!

Comité organisateur / *Organizing Committee*

Michèle Breton
HEC Montréal

Komlan Sedzro
ESG-UQAM

Benjamin Croitoru
McGill University

Denise Morin
IFM2

Georges Dionne
HEC Montréal

Luc St-Arnault
IFM2

Alexandre Roch
ESG-UQAM

Le programme en bref / *Program at a glance*

Monday, April 28 / Lundi 28 avril

8:00-8:45	Registration / <i>Inscription</i>
8:45-9:00	Opening session / <i>Séance d'ouverture</i> Amphithéâtre Banque Nationale Luc St-Arnault , directeur de l'IFM2
9:00-10:00	Plenary lecture / <i>Exposé plénier</i> Robert Jarrow , Graduate School of Management, Cornell University Amphithéâtre Banque Nationale
10:00-10:20	Break / <i>pause</i>
10:20-12:00	Parallel sessions M2 / <i>Séances parallèles M2</i> Asset Pricing , Banque CIBC Contingent Claim Pricing I , Banque Scotia Estimation and Forecasting I , TAL Gestion globale d'actifs inc Best M.Sc. dissertations , Amphithéâtre Banque Nationale
12:00-13:30	Lunch / <i>Déjeuner</i> Atrium
13:30-15:10	Parallel sessions M3 / <i>Séances parallèles M3</i> Credit Risk , Banque CIBC Risk and Return , Banque Scotia Derivatives Pricing and Hedging , TAL Gestion globale d'actifs inc
15:10-15:30	Break / <i>pause</i>
15:30-17:10	Parallel sessions M4 / <i>Séances parallèles M4</i> Investment Strategies , Banque CIBC Systemic Risk , Banque Scotia Portfolio Optimization , TAL Gestion globale d'actifs
17:10-19:00	Cocktail and best paper award / Réception et prix du meilleur article Patrick Savaria , Vice-président associé, Caisse de dépôt et placement du Québec Luc St-Arnault , Directeur général, IFM2 Salon Deloitte

Tuesday, April 29 / Mardi 29 avril

9:00-10:00	Plenary lecture / <i>Exposé plénier</i> Peter Tankov , Université Paris-Diderot (Paris 7) Amphithéâtre Banque Nationale
10:00-10:20	Break / <i>pause</i>
10:20-12:00	Panel discussion / Table ronde Illiquid Assets, OTC Transactions and Portfolio Management Mohamed Kortas , Directeur, Services conseil et recherche. Caisse de dépôt et placement du Québec Jacques Lussier , CEO/CIO Ipsol capital Inc. Michel Lebel , Directeur en chef, Évaluation et risque de marché, Investissement PSP
12:00-13:30	Lunch / <i>Déjeuner</i> Atrium
13:30-15:10	Parallel sessions T3 / <i>Séances parallèles T3</i> Financial Market Model , Banque CIBC Estimation and Forecasting II , Banque Scotia Contingent Claim Pricing II , TAL Gestion globale d'actifs inc
15:10-15:30	Break / <i>pause</i>
15:30-17:10	Parallel sessions T4/ <i>Séances parallèles T4</i> Risk Modelling , Banque CIBC Performance Evaluation , Banque Scotia Corporate Models , TAL Gestion globale d'actifs

Plenary speaker / Conférencier plénier

Robert A. Jarrow is Ronald P. & Susan E. Lynch Professor of Investment Management at Samuel Curtis Johnson Graduate School of Management, Cornell University. Professor Jarrow's teaching and research interests involve the study of mathematical finance. He is interested in derivatives, risk management, investments and asset pricing theory. Jarrow is currently engaged in research relating to the pricing of credit derivatives, liquidity risk, and risk management. He is a graduate faculty representative in four fields: management, economics, operations research and industrial engineering, and applied mathematics.



Jarrow is on the advisory board of Mathematical Finance and he is an associate editor for numerous other finance journals. His research has won numerous awards including the Graham and Dodd Scrolls Award 2001, the CBOE Pomerance Prize in 1982, and the Ross Best Paper Award in 2008. In 1997, he was named IAFE Financial Engineer of the Year in recognition of his research accomplishments. He is currently an IAFE senior fellow and an FDIC senior fellow. He is in the Fixed Income Analysts Society Hall of Fame, Risk Magazine's 50 member Hall of Fame, and listed in the Who's Who of Economics. He received Risk Magazine's Lifetime Achievement Award in 2009. He also serves on various corporate board of directors and advisory boards.



Peter Tankov is Professor of Applied Mathematics at the Laboratory for Probability and Random Models (LPMA) of Paris-Diderot (Paris 7) University. He is a leading expert on jump risk in financial markets, author of the widely read book “Financial Modelling with Jump Processes”, and of many publications on subjects ranging from risk management, option pricing, model calibration and commodity prices modeling to stochastic control and discretization of stochastic differential equations. He serves as associate editor of SIAM Journal on Financial Mathematics and Statistics and Risk Modeling.

La langue dans laquelle apparaît le titre sera celle utilisée lors de la présentation.

Talks will be given in the language in which the title appears.

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Monday April 28 / Lundi 28 avril	
M1	Plenary lecture / exposé plénier Amphithéâtre Banque Nationale
9:00	POSITIVE ALPHAS AND A GENERALIZED MULTIPLE-FACTOR ASSET PRICING MODEL Robert Jarrow , Graduate School of Management, Cornell University
M2A	Asset pricing Room / Salle : Banque CIBC Chairperson / président: Aytex Malkhozov
10:20	MODEL DISAGREEMENT, VOLATILITY, AND TRADING VOLUME Daniel Andrei, UCLA Bruce Carlin, UCLA Michael Hasler , University of Toronto
10:45	ASSET PRICING WITH RETURN ASYMMETRIES: THEORY AND TESTS Hugues Langlois , McGill University
11:10	FUNDING LIQUIDITY CAPM: INTERNATIONAL EVIDENCE Aytex Malkhozov , McGill Philippe Mueller, LSE Andrea Vedolin, LSE Gyuri Venter, CBS
11:35	ASSET PRICING WITH REGIME-DEPENDENT PREFERENCES AND LEARNING Tony Berrada , University of Geneva Jerome Detemple, Boston University Marcel Rindisbacher, Boston University
M2B	Contingent Claim Pricing I Room / Salle : Banque Scotia Chairperson / président: Jean-François Renaud
10:20	EXTENSIONS TO THE FBSDE APPROACH TO TERM STRUCTURE MODELS Cody Hyndman, Department of Mathematics and Statistics, Concordia University Renjie Wang , Department of Mathematics and Statistics, Concordia University
10:45	PRICING STEP AND CORRIDOR OPTIONS IN AN EXPONENTIAL SPECTRALLY NEGATIVE LÉVY MODEL Jean-François Renaud , UQAM
11:10	A REGIME SWITCHING MULTIFRACTIONAL OPTION PRICING MODEL Stefan Rostek , University of Tuebingen
11:35	AN APPROACH FOR PRICING BERMUDIAN DERIVATIVES Michèle Breton, HEC Montréal Saad Serghini Idrissi , HEC Montréal

M2C	Estimation and Forecasting Room / Salle : TAL Gestion globale d'actifs inc Chairperson / président: Mathieu Boudreault
10:20	QUANTILES ESTIMATION FROM HEAVY-TAILED DISTRIBUTION Arthur Charpentier , UQAM Emmanuel Flachaire, Université d'Aix-Marseille, GREQAM-EHESS
10:45	GENERALIZED HESSIAN FOR NONLINEAR AND NON-GAUSSIAN STATE SPACE MODELS. Barnabe Djegnene , National Bank of Canada William McCausland, University of Montreal
11:10	TESTING THE NULLITY OF COEFFICIENTS OF A GARCH MODEL WITH EXOGENOUSLY-DRIVEN VOLATILITY Nazim Regnard , DIRO Université de Montréal
11:35	ESTIMATION OF ASSET CORRELATIONS WITH TRANSIENT SHOCKS IN A MULTI-NAME CREDIT RISK MODEL Mathieu Boudreault , UQAM Geneviève Gauthier, HEC Montréal Tommy Thomassin, Standard Life
M2D	Best M.Sc. Dissertation/Meilleurs mémoires de M.Sc. Room / Salle : Amphithéâtre Banque Nationale Chairperson / président: Maher Kooli
10:20	TARIFICATION DE DÉRIVÉS DE TAUX D'INTÉRÊT PRÉSENTANT DES CLAUSES IMPLICITES Stéphane Laville , ESG UQAM
10:45	MODÈLE DE PROBABILITÉ DE DÉFAUT DES PRÊTS D'UNE BANQUE CANADIENNE Fatoumata A dite Woybi Touré , HEC Montréal
11:10	LIQUIDITÉ DU MARCHÉ DES ACTIONS ET RENDEMENTS DES FONDS MUTUELS EN TEMPS DE CRISE Simon Carrier , Université Laval

M3A	Credit Risk Room / Salle : Banque CIBC Chairperson / président: Patrick Augustin
13:30	HOW CREDIT DEFAULT SWAPS INCREASE CREDIT RISK VIA CREDITOR'S SAFETY COVENANT AND DEBTOR'S STRATEGIC DEBT SERVICE Ju Xiang , Southern University of Science & Technology, China
13:55	CREDIT SPREADS WITH DYNAMIC DEBT Sanjiv Das, Santa Clara University Seoyoung Kim , Santa Clara University
14:20	THE TERM STRUCTURE OF CDS SPREADS AND SOVEREIGN CREDIT RISK Patrick Augustin , McGill University
14:45	ON THE HETEROGENEITY OF CREDIT RATING CATEGORIES AND THE CALIBRATION OF STRUCTURAL MODELS Michèle Breton, HEC Montréal Yaovi Gassesse Siliadin , HEC Montréal
M3B	Risk and Return Room / Salle : Banque Scotia Chairperson / président: Cédric Okou
13:30	DOWNSIDE AND UPSIDE VARIANCE RISK-PREMIUM Bruno Feunou, Bank of Canada Mohammad Jahan-Parvar, Federal Reserve Board Cédric Okou , ESG-UQAM
13:55	DYNAMICS OF RISK-NEUTRAL MOMENTS IN EQUITIES AND COMMODITIES Marie-Hélène Gagnon, Université Laval, Dept de Finance, Assurance et Immobilier Gabriel J. Power , Université Laval Dept de Finance, Assurance et Immobilier, Dominic Toupin, Université Laval Dept de Finance, Assurance et Immobilier,
14:20	INFORMATION CONTENTS OF OPTION PRICES ON IDIOSYNCRATIC AND SYSTEMATIC EQUITY RISKS Elise Gourier , Princeton University
14:45	VARIANCE RISK PREMIUM DYNAMICS IN EQUITY AND OPTION MARKETS Laurent Barras , McGill Aytex Malkhozov, McGill

M3C	Derivatives pricings and Hedging Room / Salle : TAL Gestion globale d'actifs inc Chairperson / président: Alexandre F. Roch
13:30	MINIMIZING CVAR IN GLOBAL DYNAMIC HEDGING WITH TRANSACTION COSTS Frédéric Godin , HEC Montréal
13:55	QUADRATIC HEDGING SCHEMES FOR NON-GAUSSIAN GARCH MODELS Alexandru Badescu , UQÀM Robert J. Elliott, University of Calgary Juan-Pablo Ortega, Université de Franche-Compté
14:20	SHORT-TERM HEDGING FOR AN ELECTRICITY RETAILER Frédéric Godin , HEC Montréal Debbie Dupuis, HEC Montréal Geneviève Gauthier, HEC Montréal
14:45	BUBBLES IN DISCRETE MARKETS Alexandre F. Roch , ESG UQAM

M4A	Investment Strategies Room / Salle : Banque CIBC Chairperson / président: Alain Paquet
15:30	APPARENT PATTERNS IN THE STOCK MARKET: ARE THEY MISLEADING OR PROFITABLE? AN EMPIRICAL ASSESSMENT OF TECHNICAL ANALYSIS. Adil Mahroug , ESG-UQAM Alain Paquet , ESG-UQAM
15:55	WHO ARE THE VALUE AND GROWTH INVESTORS? Sebastien Betermier , McGill Laurent Calvet, HEC Paris Paolo Sodini, Stockholm School of Economics
16:20	AN OPTION TO CHEAT: AN APPLICATION OF OPTION THEORY TO REALIZE FLIPPING IN UNDERPRICING Jovan Stojkovic , University of Lugano and Swiss Finance Institute
16:45	INDICATEUR AVANCÉ POUR MARCHÉS ÉMERGENTS Franckel Badoussi , UQAM
M4B	Systemic Risk Room / Salle : Banque Scotia Chairperson / président: Christian Calmès
15:30	BANK SYSTEMIC RISK AND MACROECONOMIC SHOCKS: CANADIAN AND U.S. EVIDENCE Christian Calmès , UQO Raymond Théoret, ESG-UQAM
15:55	FINANCIAL NETWORK HIERARCHY, HOMOGENIZATION AND SYSTEMIC RISK Garence Staraci , Yale University George Papanicolaou, Stanford University
16:20	SYSTEMIC OPERATIONAL RISK METRICS Fred Sommers , OpsRISK Limited
16:45	ON THE MULTIVARIATE NEURAL NETWORK MODELING OF SYSTEMIC LIQUIDITY RISK FACTORS Gordon H Dash, Univ. of Rhode Island Nina Kajiji , Univ. of Rhode Island

M4C	Portfolio Optimization Room / Salle : TAL Gestion globale d'actifs inc Chairperson / président: Jean-Guy Simonato
15:30	GRAM-CHARLIER PROCESSES AND EQUITY-INDEXED ANNUITIES J.P. Chateau, Uni. of Macau D. Dufresne , Uni. of Melbourne
15:55	A SIMULATION-AND-REGRESSION APPROACH FOR DYNAMIC PORTFOLIO CHOICE Érick Delage, HEC Montréal Michel Denault, HEC Montréal Jean-Guy Simonato , HEC Montréal
16:20	PORTFOLIO ALLOCATION WITH FORWARD DYNAMIC PROGRAMMING Siyang Wu , HEC Montreal Michel Denault, HEC Montreal
16:45	OPTIMAL MULTIPERIOD-MEAN-VARIANCE POLICY UNDER NO-SHORTING CONSTRAINT WITH MARKOV SWITCHING PARAMETERS Moussa Kounta , UQAM François Watier, UQAM

Tuesday, April 29 / Mardi 29 avril	
T1	Plenary lecture / exposé plénier Amphithéâtre Banque Nationale
9 :00	ASYMPTOTIC METHODS FOR PORTFOLIO RISK MANAGEMENT Peter Tankov, Université Paris-Diderot (Paris 7)
T2	Panel discussion / Table ronde Illiquid Assets, OTC Transactions and Portfolio Management Amphithéâtre Banque Nationale Chairperson / président : Komlan Sedzro
10:20	Mohamed Kortas, Directeur-conseil, Recherche, Déposants et Initiatives stratégiques. Caisse de dépôt et placement du Québec Jacques Lussier, CEO/CIO Ipsol capital Inc. Michel Lebel, Directeur en chef, Évaluation et risque de marché, Investissement PSP

T3A	Financial Market Model Room / Salle : Banque CIBC Chairperson / président: Diego Amaya
13:30	MARKET MAKING OBLIGATIONS AND FIRM VALUE Hendrik Bessembinder University of Utah Jia Hao, Wayne State University Kuncheng Zheng, University of Michigan
13:55	DISTILLING LIQUIDITY FROM LIMIT ORDER BOOKS Diego Amaya , ESG UQAM Jean-Yves Filbien, ESG UQAM Cédric Okou, ESG UQAM Alexandre Roch, ESG UQAM
14:20	VARIANCE RISK PREMIA AND CAPITAL STRUCTURE Babak Lotfaliei , McGill University
14:55	GENERAL MODEL FOR MARKET ORDERS UNDER ILLIQUIDITY ASSUMPTION Clarence Simard , Université de Montréal
T3B	Estimation and Forecasting II Room / Salle : Banque Scotia Chairperson / président: Robert Pouliot
13:30	BASEL III AND THE PREDICTION OF FINANCIAL CRISES Simon Van Norden , HEC Montréal Marc Wildi, Institute of Data Analysis and Process Design, Winterthur
13:55	VOLATILITY FORECASTING WHEN THE NOISE VARIANCE IS TIME-VARYING Selma Chaker , Bank of Canada Nour Meddahi, Toulouse School of Economics
14:20	LA FINANCE MATHÉMATIQUE PEUT-ELLE MESURER LA CONFIANCE? Robert Pouliot , ESG-UQAM
14:55	NONLINEAR FACTOR MODELS OF LARGE DIMENSIONS Mohammed Bouaddi , American University in Cairo

T3C	Contingent Claim Pricing II Room / Salle : TAL Gestion globale d'actifs inc Chairperson / président: Yaovi Gassesse Siliadin
13:30	PRICING THE CVA OF AMERICAN OPTIONS Michèle Breton, HEC Montréal Oussama Marzouk , HEC Montréal
13:55	A HYBRID FOURIER-MONTE CARLO METHOD FOR BASKET OPTION VALUATION Tony Ware , University of Calgary Binbin Wang, Markit
14:20	AMERICAN-STYLE OPTIONS IN GAUSSIAN JUMP-DIFFUSION MODELS: ESTIMATION AND EVALUATION. Hatem Ben Ameer, HEC Bruno Rémillard, HEC Rim Chérif , HEC
14:55	DISCRETE BARRIER OPTIONS. EXACT GEOMETRIC SOLUTION. Alexander Skabelin

T4A	Risk Modelling Room / Salle: Banque CIBC Chairperson / président : Maria Pacurar
15:30	MULTIVARIATE RISK SHARING AND THE DERIVATION OF INDIVIDUALLY RATIONAL PARETO OPTIMA Alain Chateauneuf, Paris School of Economy Mina Mostoufi , Paris School of Economy David Vyncke, Ghent University
15:55	LIQUIDITY-ADJUSTED INTRADAY VALUE AT RISK MODELING AND RISK MANAGEMENT: AN APPLICATION TO DATA FROM DEUTSCHE BÖRSE George Dionne, HEC Montréal Maria Pacurar , Rowe School of Business, Dalhousie University Xiaozhou Zhou, HEC Montréal
16:20	MODÈLE INTERTEMPOREL, DIVIDENDES ET RISQUES À LONG TERME Claude Bergeron , Téléuq
T4B	Performance Evaluation Room / Salle : Banque Scotia Chairperson / président: David Ardia
15:30	MUTUAL FUND PERFORMANCE EVALUATION AND BEST CLIENTELES Stéphane Chrétien, Université Laval Manel Kammoun , Université Laval
15:55	THE PEER PERFORMANCE OF HEDGE FUNDS David Ardia , Université Laval Kris Boudt, Solvay Business School
16:20	DIVERSIFICATION DES REVENUS ET PRISE DE RISQUE DANS LES THRIFTS AMÉRICAINS Wejdi Yahyaoui , ESG-UQAM
T4C	Corporate Models Room / Salle: TAL Gestion globale d'actifs inc Chairperson / président: Tarcisio Da Graça
15:30	THE VALUE IN WAITING TO ISSUE DEBT Babak Lotfaliei , McGill University
15:55	A STRUCTURAL EVENT STUDY FOR M&AS: AN APPLICATION IN CORPORATE GOVERNANCE Tarcisio Da Graça , UQO Robert Masson, Cornell
16:20	HOW DO FIRMS HEDGE RISKS? EMPIRICAL EVIDENCE FROM US OIL AND GAS PRODUCERS Georges Dionne, HEC Montréal Jean-Pierre Gueyie, ESG-UQAM Mohamed Mnasri , ESG-UQAM

Résumés / Abstracts

Les résumés sont classés par ordre alphabétique du nom du présentateur.

Abstracts are ordered alphabetically by family name of the presenter.

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DISTILLING LIQUIDITY FROM LIMIT ORDER BOOKS

Diego Amaya, ESG UQAM amaya.diego@uqam.ca

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Limit order books contain a very rich and complex source of information about liquidity provision and price formation. We exploit the NYSE ARCA book for 500 of the largest traded companies and compute a measure of the effective cost of trading. We find evidence that this measure aggregated at different time intervals provides information about the impact that order flow dynamics have on prices. This offers a new understanding on the way sophisticated investors react to order imbalances at an intraday level and how the quote process adapts to such reactions.

THE PEER PERFORMANCE OF HEDGE FUNDS

David Ardia, Université Laval david.ardia@fsa.ulaval.ca

Kris Boudt, Solvay Business School kris.boudt@vub.ac.be

An important component in the analysis of (hedge) fund returns is to measure its performance with respect to the group of peer funds. The industry standard is to rank funds based on their risk-adjusted return and conclude that the fund outperforms the peers with a lower rank. In case all funds perform equally well, this rate of outperformance will be a random number between zero and one, depending on how lucky the fund is. We use the false discovery rate approach to construct relative performance ratios that account for the uncertainty in estimating the performance differential of two funds. Our application is on hedge funds, which leads us to develop a test for equality of the modified Sharpe ratio of two funds. The effectiveness of the method is illustrated with a Monte Carlo study and an empirical study is performed on the Hedge Fund Research database.

Our regression analysis shows that the larger the fund is, the more similar the fund returns are to its peers, and that small funds have a higher tendency to under-perform.

THE TERM STRUCTURE OF CDS SPREADS AND SOVEREIGN CREDIT RISK

Patrick Augustin, McGill University patrick.augustin@mcgill.ca

The shape of the term structure of credit default swap spreads is an informative signal about the relative importance of global and domestic risk factors to the time variation of sovereign credit spreads. A model illustrates how global shocks determine spread changes when the slope is positive, while a negative slope indicates that domestic shocks are relatively more important. These theoretically motivated results are empirically validated using a geographically dispersed panel of 44 countries. Overall, the results suggest that both global risk factors and country-specific fundamentals are important sources of sovereign credit risk. They simply matter at different times.

QUADRATIC HEDGING SCHEMES FOR NON-GAUSSIAN GARCH MODELS

Alexandru Badescu, UQAM badescu_alexandru.mircea@uqam.ca

Robert J. Elliott, University of Calgary

Juan-Pablo Ortega, Université de Franche-Compté

We propose different schemes for option hedging when asset returns are modeled using a general class of GARCH models. More specifically, we implement local risk minimization and a minimum variance hedge approximation based on an extended Girsanov principle that generalizes Duan's (1995) delta hedge. Since the minimal martingale measure fails to produce a probability measure in this setting, we construct local risk minimization hedging strategies with respect to a pricing kernel. These approaches are investigated in the context of non-Gaussian driven models. Furthermore, we analyze these methods for non-Gaussian GARCH diffusion limit processes and link them to the corresponding discrete time counterparts. A detailed numerical analysis based on S&P 500 European Call options is provided to assess the empirical performance of the proposed schemes. We also test the sensitivity of the hedging strategies with respect to the risk neutral measure used by recomputing some of our results with an exponential affine pricing kernel.

INDICATEUR AVANCÉ POUR MARCHÉS ÉMERGENTS

Franckel Badoussi, UQAM franckarias@hotmail.com

L'objectif de la recherche est de développer un modèle d'indicateur avancé mesurant le niveau de saturation (profondeur) des marchés de capitaux émergents. Nous considérant ce niveau comme étant le point à partir duquel tout retrait ou toute injection supplémentaire de capitaux fait varier l'indice de marché au-delà de deux écarts types (cas du Nigéria).

L'utilité de cet indice est d'isoler au maximum les bruits en vérifiant l'impact réel des mouvements de capitaux comme demandeurs/vendeurs de liquidité (à l'achat/vente), créateurs de volatilité (à l'achat/vente), en réponse à des degrés variables d'asymétrie d'information selon la perception de gouvernance des marchés émergents.

VARIANCE RISK PREMIUM DYNAMICS IN EQUITY AND OPTION MARKETS

Laurent Barras, McGill Laurent.barras@mcgill.ca
Aytek Malkhozov, McGill Aytek.malkhozov@mcgill.ca

Aggregate stock-market variance is a risk factor for the cross-section of individual stock returns. We use this fact to estimate the path of the risk premium associated with the variance factor between 1970 and 2012. Its average level is not statistically different from the variance risk premium implied by prices of index options available for the later part of the sample. However, equity and option variance risk premia deviate from each other, and their difference can be explained by proxies for broker-dealers capacity to take on risk and supply options.

MODÈLE INTERTEMPOREL, DIVIDENDES ET RISQUES À LONG TERME

Claude Bergeron, Téléuq claudio.bergeron@teluq.ca

We present an intertemporal stock valuation model that takes into account the equilibrium dividend growth rate. Our development is based on the Consumption-CAPM. We begin by showing that under equilibrium conditions, the expected dividend growth rate of an asset is equal to the expected dividend growth rate for the zero-beta portfolio plus a premium that is directly proportional to the long-run sensitivity of asset's dividends to aggregate consumption. We then suggest that our model offers an additional tool that can be used to estimate the expected dividend growth rate of a stock and its corresponding intrinsic value.

ASSET PRICING WITH REGIME-DEPENDENT PREFERENCES AND LEARNING

Tony Berrada, University of Geneva Tony.berrada@unige.ch
Jerome Detemple, Boston University detemple@bu.edu
Marcel Rindisbacher, Boston University rindisbm@bu.edu

This paper studies equilibrium in a pure exchange economy with unobservable Markov switching consumption growth regimes and regime-dependent preferences. Variations in risk attitudes have fundamental effects on the structure of equilibrium. Explicit solutions are provided for the market price of risk, the interest rate, stock and bond prices, and asset return volatilities. Calibration shows that this one-factor model can simultaneously support empirical long run values of the market price of risk, the interest rate, the stock market volatility, the equity premium and the moments of the consumption growth rate. Dynamic properties of the model are examined. An implied recession index is constructed and its performance evaluated. The ability to explain the dividend strips puzzle, the term structure of interest rates and the predictive behavior of the term premium are studied.

MARKET MAKING OBLIGATIONS AND FIRM VALUE

Hendrik Bessembinder University of Utah finhb@business.utah.edu

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We examine the effects of secondary market liquidity on firm value and the decision to conduct an Initial Public Offering (IPO). Illiquidity can lead to complete market failure, where the IPO does not occur, or partial market failure where the IPO price is discounted to reflect that some efficient secondary trades may not occur. Competitive liquidity provision leads to market failure when uncertainty regarding fundamental value and asymmetric information are large in combination. In these cases, firm value and social welfare are enhanced by a contract where the firm engages a Designated Market Maker (DMM) to enhance liquidity. Our model implies that such contracts, which are currently prohibited in the U.S., can represent a market solution to a market imperfection, particularly for small growth firms. In contrast, proposals to encourage IPOs by use of a larger tick size are likely to be counterproductive.

WHO ARE THE VALUE AND GROWTH INVESTORS?

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This paper investigates the characteristics of value and growth investors in a large administrative panel of Swedish residents over the 1999-2007 period. We document that value investors have higher financial and real estate wealth, lower leverage, lower income risk, and are more likely to be female than the average growth investor. Individual investors actively migrate to value stocks over the life-cycle and, at higher frequencies, dynamically offset the passive variations in the value tilt induced by market movements. We verify that these results are not driven by cohort effects, biases toward professionally close stocks, or unobserved heterogeneity in preferences.

NONLINEAR FACTOR MODELS OF LARGE DIMENSIONS

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Factor models for large data sets have been profoundly considered subject by econometricians during the last two decades, due to the growing accessibility of large samples of many economic indicators. In this paper we propose a new nonlinear methodology for extracting factors from large set of indicators. The model nests the linear factor model if the normality of the economic indicators is assumed. We propose a non-parametric two steps estimation of the factors using principal components analysis. We derived the rate of convergence and the limiting distribution of the factors under weak assumptions when both time and cross section dimensions raise without bounds.

ESTIMATION OF ASSET CORRELATIONS WITH TRANSIENT SHOCKS IN A MULTI-NAME CREDIT RISK MODEL

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It is well documented (Aït-Sahalia (2004), Duan & Fulop (2009), Johannes et al. (2009)) that asset prices are contaminated by trading noise which make it difficult to distinguish permanent from transient shocks. In this presentation, we will show how transient shocks impact the estimation of asset correlations in a general multi-name credit risk model. An estimation technique is presented and the statistical properties of this estimator are compared with other approaches. We conclude with an empirical example where we find that ignoring trading noise can seriously underestimate asset correlations and consequently, credit risk measures used for risk management.

BANK SYSTEMIC RISK AND MACROECONOMIC SHOCKS: CANADIAN AND U.S. EVIDENCE

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This paper investigates how banks, as a group, react to macroeconomic risk and uncertainty; more specifically, it examines the relationship between bank systemic risk and changes and disruptions in economic conditions. Adopting the methodology of Beaudry et al. (2001), we introduce a new estimation procedure based on EGARCH to refine the framework developed by Baum et al. (2002, 2004, 2009) and Quagliariello (2007, 2009), and we analyze the relationship in the current industry context— i.e., in the context of market-based banking. Our results confirm that banks tend to behave more homogeneously vis-à-vis macroeconomic uncertainty. In particular, we find that both the cross-sectional dispersion of loans-to-assets and the cross-sectional dispersion of non-interest income share shrink during slow growth episodes, and particularly during financial crises, when the resilience of the banking system is at its lowest. More importantly, our main findings indicate that the cross-sectional dispersion of loans-to-assets has increased in the last decade, whereas the cross-sectional dispersion of non-interest income share appears to be more volatile and sensitive to macroeconomic shocks.

VOLATILITY FORECASTING WHEN THE NOISE VARIANCE IS TIME-VARYING

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This paper explores the volatility forecasting implications of a model in which the friction in high-frequency prices is related to the true underlying volatility. The contribution of this paper is to propose a framework under which the realized variance may improve volatility forecasting if the noise variance is related to the true return volatility. The realized variance is defined as the sum of the squared intraday returns. When based on high-frequency returns, the realized variance would be non-informative for the true volatility under the standard framework. In this new setting, we revisit the results of Andersen et al. (2011) and quantify the predictive ability of several measures of integrated variance.

QUANTILES ESTIMATION FROM HEAVY-TAILED DISTRIBUTION

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In this work, we estimate quantiles (and other risk measures) from a nonparametric density estimation based on transformed data. A parametric cumulative distribution function is initially used to transform the data into values over the unit interval, from which a nonparametric density estimation is obtained. Finally, an estimation of the density of the original sample is obtained by back-transformation. This approach may be particularly useful to estimate heavy-tailed distributions. We discuss its implementation and its finite sample properties for density estimation, and for estimation and inference with quantiles.

AMERICAN-STYLE OPTIONS IN GAUSSIAN JUMP-DIFFUSION MODELS: ESTIMATION AND EVALUATION.

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We propose a quasi-analytical approach for valuing American-style options in Gaussian jump-diffusion models à la Merton (1976). Our approach is based on dynamic programming coupled with finite elements. We perform a numerical investigation that shows convergence and efficiency. We also address the model-estimation step and report an empirical investigation based on Apple.

A STRUCTURAL EVENT STUDY FOR M&AS: AN APPLICATION IN CORPORATE GOVERNANCE

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A structural event study methodology accounts for the interaction of two M&A effects: synergy (total value) and dominance (bargaining power). This interaction jointly (simultaneously) determines the parties' abnormal returns. We propose an instrumental variable approach. An application in corporate governance illustrates our methodology. We posit that M&A synergy effects correspond to changes in agency costs between target's management and target's shareholders; and the dominance effect corresponds to balance of power between acquirer and target during negotiations. Structural estimates indicate that more stable or entrenched directors generate higher value during normal operations but are softer negotiators when their firm becomes an acquisition target.

GENERALIZED HESSIAN FOR NONLINEAR AND NON-GAUSSIAN STATE SPACE MODELS.

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This article develops a method for parameters estimation and simulation smoothing in nonlinear and non-Gaussian state space models. The state and observations vectors are not necessary Gaussian and they may exhibit conditional independence or dependence. The method is based on a closed approximation of the conditional density of states given observations. The approximate density can be used as importance density in importance sampling or proposal density in Markov chain Monte Carlo methods for Bayesian posterior simulations. We illustrate using Asymmetric Stochastic Conditional Duration models (ASCD). Simulation on artificial data and real data show that this method is numerically and computationally efficient.

GRAM-CHARLIER PROCESSES AND EQUITY-INDEXED ANNUITIES

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A Gram-Charlier distribution has a density that is a polynomial times a normal density. Properties of the Gram-Charlier distributions are derived, including moments, tail estimates, moment indeterminacy of the exponential of a Gram-Charlier distributed variable, non-existence of a continuous-time Levy process with Gram-Charlier increments, as well as formulas for option prices and their sensitivities. A simulation procedure Gram-Charlier distributions is given. Multiperiod Gram-Charlier modelling of asset returns is described, apparently for the first time. Formulas for equity indexed annuities' premium option values are given, and a numerical illustration shows the importance of skewness and kurtosis of the risk neutral density.

MINIMIZING CVAR IN GLOBAL DYNAMIC HEDGING WITH TRANSACTION COSTS

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A global derivatives hedging methodology which takes into account the presence of transaction costs is developed. It extends the Hodges & Neuberger (1989) in two ways. First the expected utility is replaced by the CVaR coherent risk measure as the objective function to reduce the occurrence of extreme losses. Second, the normality assumption for the underlying asset returns is relaxed:

General distribution are considered to improve the realism of the model and be consistent with fat tails observed empirically. Simulations show the superiority of the proposed hedging method over multiple benchmarks of the literature in terms of tail risk reduction.

SHORT-TERM HEDGING FOR AN ELECTRICITY RETAILER

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A dynamic global hedging procedure making use of futures contracts is developed for a retailer of the electricity market facing price, load and basis risk. Statistical models reproducing stylized facts are developed for the electricity load, the day-ahead spot price and futures prices in the Nord Pool market. These models serve as input to the hedging algorithm, which also accounts for transaction fees. Backtests with market data from 2007 to 2012 show that the global hedging procedure provides considerable risk reduction when compared to hedging benchmarks found in the literature.

INFORMATION CONTENTS OF OPTION PRICES ON IDIOSYNCRATIC AND SYSTEMATIC EQUITY RISKS

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This paper analyses the impact of the market factor on the dynamics of individual stock returns as implied from option prices and underlying asset levels. We estimate a continuous variation of the Capital Asset Pricing Model with jumps using a particle filtering approach over a time period including the recent financial crisis. The filtered diffusive and jump components that drive the idiosyncratic and systematic risks of single stocks are quantified. We relate them to higher order moments of returns and study their impact on the dynamics of the equity and variance risk premia.

MODEL DISAGREEMENT, VOLATILITY, AND TRADING VOLUME

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We study the impact of model disagreement on the dynamics of asset prices, return volatility, and trade in the market. In our continuous-time framework, two investors have homogeneous preferences and equal access to information, but disagree about the length of the business cycle. We show that while the absolute level of volatility is driven primarily by long-run risk, the variation and persistence of volatility (i.e., volatility clustering) is driven by disagreement. Not only can disagreement amplify volatility in the market, but it is also the primary channel through which volatility affects trading volume. Compared to previous studies that consider model uncertainty with a representative agent or those which study heterogeneous beliefs with no model disagreement, our paper helps us to understand the evolution of the persistent, time-varying volatility process that we observe empirically.

AN APPROACH FOR PRICING BERMUDIAN DERIVATIVES

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We suggest a general and flexible numerical evaluation method using dynamic programming coupled with the Clenshaw-Curtis quadrature. We show how to apply this method to the evaluation of Bermudian options under different models, such as the Black-Scholes lognormal model, the Merton jump-diffusion model or the family of autoregressive (GARCH) models. This evaluation method is efficient, very general and can be easily applied to any exotic Bermudian option, regardless the payoff function. It can be used for a large number of market models, as long as the density function of the state variable distribution can be computed efficiently.

ON THE MULTIVARIATE NEURAL NETWORK MODELING OF SYSTEMIC LIQUIDITY RISK FACTORS

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Investment approaches that embrace environmental, sustainability and governance (ESG) factors provide investors with long-term performance gains. Sampling ETFs we create independent ESG market proxies using PCA and Varimax rotation to establish maximum validity factor score dimensions. Next, the simultaneous estimation of asset elasticity metrics is obtained by fitting a weighted multivariate nonlinear radial basis function artificial neural network (MRANN) across all returns. The linear weights obtained are quasi Cobb-Douglas elasticity metrics with respect to the latent ESG production factors. As a control for systemic risk in efficient diversification, we incorporate the elasticity metrics into the traditional mean-variance portfolio optimization problem.

MUTUAL FUND PERFORMANCE EVALUATION AND BEST CLIENTELES

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This paper develops a performance measure that considers a mutual fund's best potential clientele in incomplete market with investor disagreement. Based on the law of one price and no good-deal conditions, we obtain an upper bound on admissible performance measures that identifies the most favorable evaluation. We find that an increase in admissible investment opportunities equivalent to half the Sharpe ratio of the market index leads to generally positive performance for the best clientele. These results are robust to the use of different basis assets and conditioning information, and to adjustments for false discoveries.

CREDIT SPREADS WITH DYNAMIC DEBT

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We extend the baseline Merton (1974) structural default model, which is intended for static debt guarantees, to a setting with dynamic debt, where leverage can be ratcheted up as well as written down through pre-specified exogenous policies. For many dynamic debt covenants, ex-ante credit spread term structures can be derived in closed-form using modified barrier option mathematics, whereby debt guarantees can be expressed using combinations of single barrier options (both knock-in and knock-out), double barrier options, double-touch barrier options, in-out barrier options, and one-touch double barrier binary options. Overall, explicitly modeling this latent option to alter debt leads to term structures of credit spreads that are more consistent with observed empirics.

OPTIMAL MULTIPERIOD-MEAN-VARIANCE POLICY UNDER NO-SHORTING CONSTRAINT WITH MARKOV SWITCHING PARAMETERS

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We consider the mean-variance formulation in multiperiod portfolio selection under no-shorting constraint subject to Markov random regime switchings.

As the deterministic case solved by Xiangyu Cui and al, we prove that the optimal portfolio policy is piecewise linear, based on a set of interconnected Riccati difference equations.

ASSET PRICING WITH RETURN ASYMMETRIES: THEORY AND TESTS

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I derive an equilibrium asset pricing model incorporating both systematic and idiosyncratic return asymmetries, and show their respective impact on expected returns. With systematic return asymmetry, investors allocate their wealth between the risk-free security, the market portfolio, and a factor which overweights assets with high systematic asymmetry. Investors who prefer positive asymmetry remain underdiversified from a mean-variance perspective to preserve skewness in their portfolio, and idiosyncratic asymmetry therefore is priced in equilibrium. I find that a systematic asymmetry factor and a factor capturing idiosyncratic asymmetry help explain the cross-sectional variation of expected returns across U.S. equities, international equity markets, government bonds, currencies, and commodities. My results offer a risk-based explanation of expected returns that contributes to our understanding of asset pricing across multiple markets.

THE VALUE IN WAITING TO ISSUE DEBT

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This paper addresses the zero-leverage puzzle, the observation that many firms do not issue debt and thus seem to forego sizable debt benefits. By considering the real option of issuing debt, small and risky firms have incentives to postpone debt issuance, even when standard trade-off theory predicts that these firms should have leverage. Thus, the value of debt-free firms should include an option component whose value is derived from future debt issuance benefits. The paper proposes a model of optimal timing for issuing debt and finds empirical support for the model's predictions.

VARIANCE RISK PREMIA AND CAPITAL STRUCTURE

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This paper addresses the underleverage puzzle by introducing the asset volatility risk premium. In models without volatility risk, the paper empirically documents that underleverage increases with the assets' volatility risk premium. In particular, the underleverage is most important for investment-grade firms. With priced asset volatility risk, two models in standard trade-off settings show that a higher premium implies lower leverage. Empirically, the models' calibration leaves no significant underleverage patterns in the cross-section of the firms. Thus, seemingly underleveraged firms have high asset volatility risk premia relative to their low physical asset volatility, which explains their apparent underleverage.

APPARENT PATTERNS IN THE STOCK MARKET: ARE THEY MISLEADING OR PROFITABLE? AN EMPIRICAL ASSESSMENT OF TECHNICAL ANALYSIS.

CONFIGURATIONS APPARENTES DANS LES MARCHÉS BOURSIERS : L'APPARENCE EST-ELLE TROMPEUSE OU PROFITABLE? UNE ÉVALUATION EMPIRIQUE DE L'ANALYSE TECHNIQUE.

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Using high-frequency equity price data for stocks included in the NYSE Dow Jones Industrial Average index, and in the S&P/TSX index for the 2004 to 2014 period, we conduct an empirical assessment of the potential performance and robustness of market trading rules based on technical analysis. We use recent development in financial econometrics. After applying smoothing techniques to the data, we identify extrema and patterns in daily closing stock exchange prices (e.g. broadening tops, head-and-shoulders, and triangle bottoms). While Lo, Mamaysky and Wang (Journal of Finance, 2000) used kernel estimations, we employ local polynomial regressions that may be less prone to biases and more robust in more turbulent markets, such as those observed since 2007. As some kind of weighted least-squares estimation needs to be applied sequentially, we apply a Tikhonov regularization to resolve cases of extreme multicollinearity arising for certain sub-periods. Finally, we assess whether arbitrage based on these patterns can give rise to a statistically significant risk-adjusted payoff, as well as their robustness, by implementing White's (Econometrica, 2000) reality check.

FUNDING LIQUIDITY CAPM: INTERNATIONAL EVIDENCE

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In this paper we study how funding constraints affect asset prices internationally. We build an equilibrium model with multiple countries where investors face margin constraints, and derive an international funding-liquidity adjusted CAPM. The model has implications for (i) the global and local liquidity effect on asset prices in the time-series, and (ii) for the pricing of global and local liquidity risk in the cross-section of international assets beyond market risk. We find strong support for these predictions in the data.

PRICING THE CVA OF AMERICAN OPTIONS

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We develop a new approach to price the Credit Value Adjustment (CVA) of American options. We prove a general recursive formula for the CVA. The framework we adopt uses Chebyshev interpolation coupled with dynamic programming. Our method is based on the determination of the exercise frontier and the adjustment of the value function by the counterparty's survival probability over the holding region. The algorithm is flexible and can accommodate very general dynamics for the underlying asset, along with counterparty risk features like Wrong Way Risk. Numerical results show that the suggested method is very efficient compared to simulation-based approaches.

HOW DO FIRMS HEDGE RISKS? EMPIRICAL EVIDENCE FROM US OIL AND GAS PRODUCERS

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This paper investigates the determinants of hedging strategy choice. We introduce different dynamic discrete choice frameworks with random effects to mitigate unobserved heterogeneity and state dependence. Using a new dataset on the hedging activities of 150 US oil and gas producers, we find strong evidence that hedging strategy is influenced by investment opportunities, the correlation between generated cash flows and investment expenditures, oil and gas market conditions, financial constraints, and oil and gas production specificities (i.e., production uncertainty, production flexibility, and price-quantity correlation).

MULTIVARIATE RISK SHARING AND THE DERIVATION OF INDIVIDUALLY RATIONAL PARETO OPTIMA

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Considering that a natural way of sharing risks in insurance companies is to require risk by risk Pareto optimality, we offer, in case of strong risk aversion, a simple computable method for deriving all Pareto optima. More importantly all Individually Rational Pareto optima can be computed according to our method. The main novelty provided by this work is to offer a complete characterization of Pareto optima by extensively taking advantage of the polytope structure of these Pareto optima. Furthermore it is shown that this strategy also easily describes the entire convex set of individually rational Pareto optima.

DOWNSIDE AND UPSIDE VARIANCE RISK-PREMIUM

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We propose a new decomposition of the variance risk-premium in term of upside and downside semi-variance risk-premium. As is shown in the literature, the difference between upside and downside semi-variance is a measure of skewness. Our decomposition of equity premium establishes that 1) downside semi-variance premium is the main component of the variance premium, 2) relative downside semi-variance as a measure of skewness is a priced factor and has significant prediction power for equity premium, and 3) these results are robust across the term structure of equity returns. Our empirical investigation highlights the positive and significant link between downside semi-variance risk-premium and the equity premium, as well as a positive and significant relation between relative downside semi-variance risk-premium and the equity premium. Finally, we highlight the fact that downside semi-variance fills the time gap between one quarter ahead predictability delivered by variance risk premium as a short term predictor of returns and traditional long term predictors such as price-dividend or price-earning ratios.

LIQUIDITY-ADJUSTED INTRADAY VALUE AT RISK MODELING AND RISK MANAGEMENT: AN APPLICATION TO DATA FROM DEUTSCHE BÖRSE

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This paper develops a high-frequency risk measure, the Liquidity-adjusted Intraday Value at Risk (LIVaR). Our objective is to explicitly consider the endogenous liquidity dimension associated with order size. Taking liquidity into consideration when using intraday data is important because significant position changes over very short horizons may have large impacts on stock returns. By reconstructing the open Limit Order Book (LOB) of Deutsche Börse, the changes of tick-by-tick ex-ante frictionless return and actual return are modeled jointly using a Log-ACD-VARMA-MGARCH structure. This modeling helps to identify the dynamics of frictionless and actual returns, and to quantify the risk related to the liquidity premium. From a practical perspective, our model can be used not only to identify the impact of ex-ante liquidity risk on total risk, but also to provide an estimation of VaR for the actual return at a point in time. In particular, there will be considerable time saved in constructing the risk measure for the waiting cost because once the models have been identified and estimated, the risk measure over any time horizon can be obtained by simulation without re-sampling the data and re-estimating the model.

LA FINANCE MATHÉMATIQUE PEUT-ELLE MESURER LA CONFIANCE?

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Le risque opérationnel excessif engendré par une relation fiduciaire a la caractéristique d'un écart-type élevé entre les deux extrémités d'une loyauté absolue (un bêta aligné sur les attentes du client) et d'un comportement frauduleux (un epsilon complètement aléatoire).

Peu d'applications quantitatives conviennent à tout l'aspect du risque fiduciaire dont les fondements relèvent davantage de la finance comportementale. Le risque fiduciaire est défini comme la probabilité anormalement élevée de défaillances opérationnelles et de risque de crédit dans une relation excluant toute obligation de résultat.

Tout l'aspect des moyens qu'incarnent la pratique et ses ressources exprime l'ensemble des biais cognitifs qui engendrent tant de coûts de frottement en rendement de portefeuille et qui restent orphelins de toute attribution précise. C'est l'équivalent du signe epsilon ou terme d'erreur, un fourre-tout général dans lequel est relégué tout le bruit qu'on n'arrive pas à isoler et à expliquer dans l'approche rationnelle d'utilité. Les caractéristiques de la financière fiduciaire découlent beaucoup plus de la recherche opérationnelle, particulièrement de la logique floue, afin de mieux cerner le processus décisionnel de l'investisseur ou de son agent à la matière d'impartition et de gestion de confiance.

DYNAMICS OF RISK-NEUTRAL MOMENTS IN EQUITIES AND COMMODITIES

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We investigate the time series dynamics of risk-neutral moments implied from options data on equities (Optionmetrics Ivy DB) and commodities (CRB Bridge) based on the Bakshi-Kapadia-Madan method. We document the nature changes in the dynamics of risk-neutral moments and their link to significant dates in financial and commodity markets. Then we relate our findings to Ross's (2014) Recovery Theorem.

TESTING THE NULLITY OF COEFFICIENTS OF A GARCH MODEL WITH EXOGENOUSLY-DRIVEN VOLATILITY

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This paper establishes the asymptotic properties of the quasi-maximum likelihood estimator (QMLE) of a GARCH(1,1) process with time-varying coefficients driven by an exogenous variable, when some true coefficients may be null. The QMLE is shown to be consistent. Its asymptotic distribution is a projection of a normal vector distribution onto a convex cone. Furthermore, the QMLE is shown to converge to its asymptotic distribution locally uniformly. We then consider the problem of testing that one or several coefficients are equal to zero. The null distribution and the local asymptotic powers of the Wald, Rao-Score and Quasi-Likelihood Ratio tests are derived. The results are derived under mild conditions, that do not require the existence of moments of the observed process. The results are illustrated by numerical simulations. The framework developed here allows some intercepts to be null for certain regimes.

PRICING STEP AND CORRIDOR OPTIONS IN AN EXPONENTIAL SPECTRALLY NEGATIVE LÉVY MODEL

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Step options are strongly path-dependent derivatives based on occupation times of the underlying asset price process. In a corridor option, the payoff function is the amount of time the underlying spends in a given interval, the so-called corridor. As we are interested in the pricing of those options in an exponential spectrally negative Lévy model, that is when the log-return process is a spectrally negative Lévy process (SNLP), distributions of occupation times are needed. To this end, we will present distributional results expressed in terms of the scale functions of the underlying SNLP and its Laplace exponent.

BUBBLES IN DISCRETE MARKETS

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Recent papers by Jarrow, Protter and co-authors have highlighted the relation between local martingales and speculative bubbles. However, it is well known that in discrete time or in a probability space with a finite number of outcomes, local martingales are true martingales so there cannot exist bubbles. In this work, I extend the theory of bubbles in discrete markets in a way which is consistent with the definition in continuous time. I show how to compute the size of the bubble, and determine the presence of bubbles in a number of discrete models.

A REGIME SWITCHING MULTIFRACTIONAL OPTION PRICING MODEL

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We assume that the price of a financial asset is driven by a fractional diffusion term which switches regime through states of a pure random walk ($H=0.5$) to states where persistence temporarily occurs ($H>0.5$) or anti-persistence prevails ($H<0.5$). Motivated by related empirical work, we set up a simple regime-switching multifractional model. We derive a closed-form solution for the price of a European option written on such a multifractional asset and provide an easy example.

ON THE HETEROGENEITY OF CREDIT RATING CATEGORIES AND THE CALIBRATION OF STRUCTURAL MODELS

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It is now a consensus among credit risk modellers that structural model of default should be calibrated to observed historical default experience. We argue that the traditional calibration process relies on an assumption of homogeneity of rating categories. Then, using data from COMPUSTAT and CRSP, we provide extensive statistical evidence that the distributions of fundamentals across ratings are highly dispersed, positively skewed and overlapping. These findings challenge the view that each rating category could be represented by a single 'typical firm'. These findings also imply that the performance of structural models might have been underestimated.

GENERAL MODEL FOR MARKET ORDERS UNDER ILLIQUIDITY ASSUMPTION

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We introduce a general model for the structure and the dynamic of the limit order book in continuous time. Our starting point is using random processes with value in the space of continuous functions to model the cost of transactions. The portfolio value takes into account the opposing forces between market orders, which deplete the limit order book, and the arrival of new limit orders. We prove that the existence of some equivalent probability measure is sufficient to rule out arbitrage and that the converse cannot hold in general. We also provide a practical example with a calibration method.

A SIMULATION-AND-REGRESSION APPROACH FOR DYNAMIC PORTFOLIO CHOICE

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We develop and examine a simulation-and-regression algorithm for dynamic incomplete market portfolio choice. Our approach relies on a recursive dynamic programming algorithm which, unlike other methods proposed in this literature, avoids the need of an approximating Taylor series of the value function. The proposed algorithm relies instead on a direct characterization of the expected utility as a least square problem by introducing portfolio weights in the regressions. These least-square functions can then be optimized at every time step, and used with policy or value function iteration approaches to obtain the optimal portfolios.

DISCRETE BARRIER OPTIONS. EXACT GEOMETRIC SOLUTION.

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We found exact analytical solution for discrete barrier options in the Black-Scholes model. Prices of all European discrete barrier options and their risk sensitivities come from the volume of the same universal geometrical object

SYSTEMIC OPERATIONAL RISK METRICS

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Systemic operational risk metrics are proposed to measure the impact of operations processes such as short sales and failed trades on portfolio returns of pension funds, mutual funds and individual portfolios. As a benchmark, we track data on fixed income, equities and ETF securities failed trades and short selling. In turn, those frictional data from the US market are used to create a new concept of “unrealized systemic operational risk”, along the lines of the well known mark-to-market accounting rule “unrealized gains or losses”. The process not only attempts to show how operational risk is a clear and present overhang in the capital markets with serious effect when trying to convert apparent market liquidity into actual cash. Its measure could also be used to pre-determine the impact of such “unrealized systemic operational risk” on portfolio returns.

FINANCIAL NETWORK HIERARCHY, HOMOGENIZATION AND SYSTEMIC RISK

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We propose some new insights on the systemic risk problem in financial networks. Using a hierarchical representation of interconnected financial institutions, we first outline the phase transition type of behaviour characterizing the network stability together with the role of structural uncertainty. We then discuss the potential contribution of balance sheet uncertainty to this risk and its connection with homogenization theory. We then link our results with practical considerations such as risk assessment model design, and systemically important financial institutions detection.

AN OPTION TO CHEAT: AN APPLICATION OF OPTION THEORY TO REALIZE FLIPPING IN UNDERPRICING

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This paper proposes a novel direction to rationalize and quantify investors’ flipping behavior and its effect on underpricing in IPOs. Through the use of a perpetual American Call with a stochastic strike the model measures flipping in a real option framework adapted to the IPO environment. The outcome is a proxy value that replicates investors’ flipping behavior. When tested empirically, the model predicts that on average 30% of underpricing is there to protect long-term investors from detrimental effects of flippers. In aggregate terms, this implies that from 1998 to 2012 issuing firms lost \$19.8 billion due to flipping.

BASEL III AND THE PREDICTION OF FINANCIAL CRISES

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We apply Direct Filter Analysis to the measurement of credit cycles with the aim of improving real-time estimates of cycles by suppressing both noise and filter lag. We evaluate filter performance by comparing its Receive Operating Characteristics for the prediction of Systemic Banking Crises to those of the credit cycle measure proposed by the BIS. We also consider the robustness of the results to the sample selection and the crisis scoring rules used.

EXTENSIONS TO THE FBSDE APPROACH TO TERM STRUCTURE MODELS

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The FBSDE approach to term-structure models characterizes bond, futures, and forward prices in affine term-structure models (ATSMs) in terms of nonlinear quadratic forward-backward stochastic differential equations with explicit solutions. We generalize the FBSDE approach to include random payoffs, known only at expiration, in quadratic term-structure models (QTSMs) and ATSMs with affine jump diffusion factor processes. We also explore connections with a stochastic control approach of Gombani and Runggaldier (2013). This connection helps explain why the forward-measure change employed in the FBSDE approach is effective and is in some sense the optimal measure change.

A HYBRID FOURIER-MONTE CARLO METHOD FOR BASKET OPTION VALUATION

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Fourier methods for option pricing have been extensively developed since the early work of Carr and Madan and others. In high dimensions, however, the curse of dimensionality limits their applicability.

We present a hybrid Fourier-Monte Carlo method for basket option valuation that can be viewed as a way of extending the applicability of Fourier option valuation methods to high dimensions.

Alternatively, the Fourier method can be viewed as a variance reduction scheme for a Monte Carlo valuation. We present a multi-level version of the method, viewed from this perspective, and prove its asymptotic efficiency.

PORTFOLIO ALLOCATION WITH FORWARD DYNAMIC PROGRAMMING

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We develop a forward dynamic programming (FDP) algorithm to solve portfolio allocation problems, where the objective of an investor is to maximize the utility of his wealth at the end of a finite horizon. Our approach is inspired by the pioneering work of W. Powell on ADP (forward approximate dynamic programming). We approximate value functions with basis functions and update them iteratively by a recursive least square procedure. Initial numerical results suggest that the resulting algorithm is flexible and efficient. It is also expected to be suitable for problems with large dimensions.

HOW CREDIT DEFAULT SWAPS INCREASE CREDIT RISK VIA CREDITOR'S SAFETY COVENANT AND DEBTOR'S STRATEGIC DEBT SERVICE

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I analyze credit default swap's (CDS) impacts on bankruptcy risk and provide closed-form boundary conditions, under which CDS can increase default risk in context of safety covenants and strategic debt service (SDS). It is optimal for creditors with both safety covenant and CDS protection to enforce early bankruptcy due to CDS's continuing costs. When creditors hedge SDS uncertainties with CDSs which dampen SDS's threats, bankruptcy risks tend to rise. Furthermore, there could be an endless chain of games between debtors and creditors with CDS.

DIVERSIFICATION DES REVENUS ET PRISE DE RISQUE DANS LES THRIFTS AMÉRICAINS

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La crise financière récente a été fortement analysée par les recherches académiques. Toutefois, l'essentiel de ces recherches a traité du processus de titrisation et le rôle des grandes banques dans le développement d'un risque devenu systémique. Pourtant, rares sont les études qui ont traité du rôle d'un acteur principal dans le paysage bancaire américain : les mutuelles de crédits appelées communément thrift. Ces dernières sont investies depuis leur création de la mission de financer les crédits hypothécaires et jouent un rôle considérable dans l'acheminement de liquidités nécessaires pour le développement du marché hypothécaire. Notre étude répond à cette lacune en analysant l'évolution de la structure des revenus des mutuelles de crédit. Nous analysons l'impact de la diversification des revenus et le rôle particulier des emprunts hypothécaires sur la prise de risque et la performance des mutuelles de crédit américaines.

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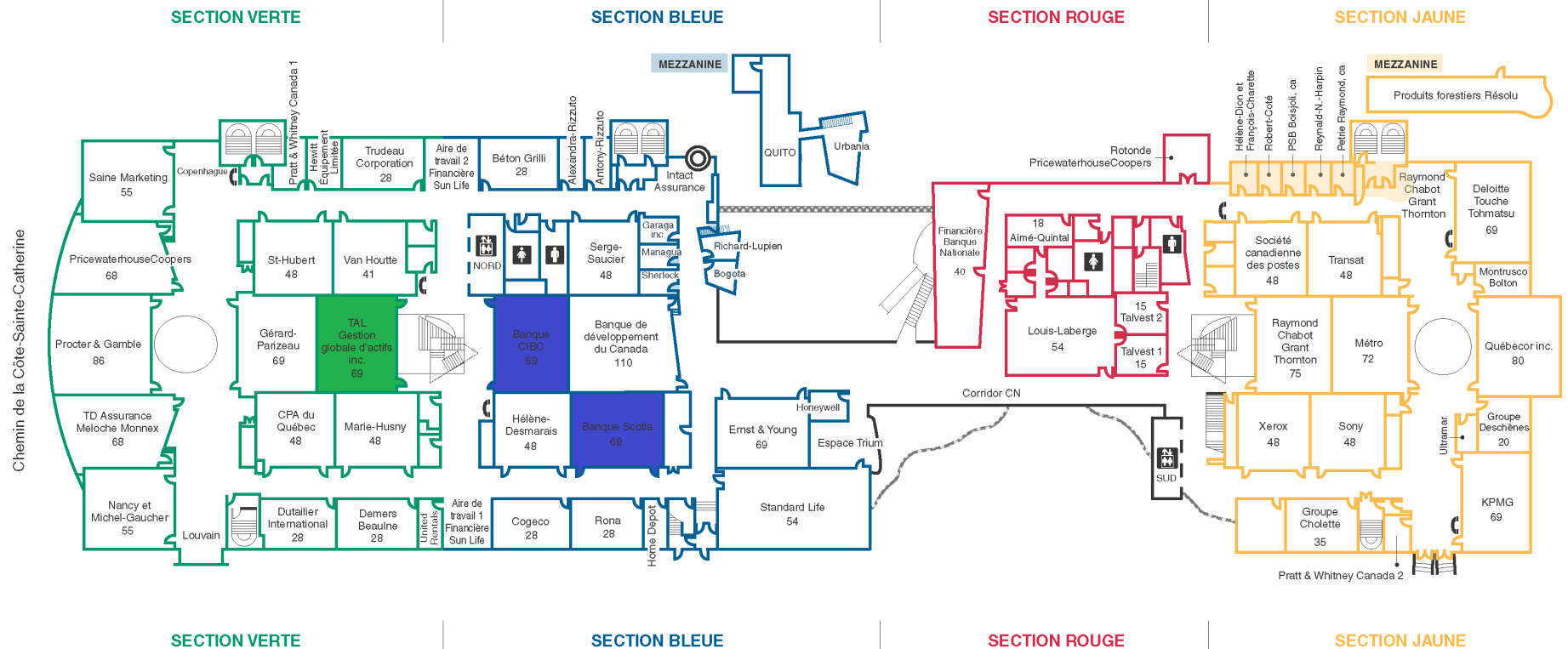
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