# 3<sup>rd</sup> Annual Conference of the Society for Financial Econometrics

June 16 – June 18

The University of Melbourne, Australia

Abstracts

**Invited Speaker:** Yacine Ait-Sahalia, Princeton University
" Modeling Financial Contagion Using Mutually Exciting Jump Processes"

Abstract

Adverse shocks to stock markets propagate across the world, with a jump in one region of the world seemingly causing an increase in the likelihood of a different jump in another region of the world. To capture this effect mathematically, we introduce a model for asset return dynamics with a drift component, a volatility component and mutually exciting jumps known as Hawkes processes. In the model, a jump in one region of the world or one segment of the market increases the intensity of jumps occurring both in the same region (self-excitation) as well as in other regions (cross-excitation). The model generates the type of jump clustering that is observed empirically. Jump intensities then mean-revert until the next jump. We develop and implement an estimation procedure for this model. Our estimates provide evidence for self-excitation both in the US market as well as in other world markets. Furthermore, we find that US jumps tend to get reflected quickly in most other markets, while statistical evidence for the reverse transmission is much less pronounced. Implications of the model for measuring market stress, risk management and optimal portfolio choice are also investigated.

Eric Renault, University of North Carolina – Chapel Hill
"Generalized Method of Moments with Tail Trimming"
*Co-author: Jonathan B. Hill*

Abstract

We develop a GMM estimator for stationary heavy tailed data by trimming an asymptotically vanishing sample portion of the estimating equations. Trimming ensures the estimator is asymptotically normal, and self-normalization implies we do not need to know the rate of convergence. Tail -trimming, however, ensures asymmetric models are covered under rudimentary assumptions about the thresholds; it implies super-$\sqrt{n}$ -consistency is achievable depending on regressor and error tail thickness and dependence; and it implies possibly heterogeneous convergence rates below, at or above $\sqrt{n}$. Models covered include linear or nonlinear autoregressions with linear or nonlinear GARCH innovations. Simulation evidence shows the new estimator dominates GMM and QML when these estimators are not or have not been shown to be asymptotically normal.

Raymond Kan, University of Toronto
"On the Hansen-Jagannathan Distance with a No-Arbitrage Constraint"
*Co-authors: Nikolay Gospodinov and Cesare Robotti*

Abstract

We provide an in-depth analysis of the theoretical and statistical properties of the Hansen-Jagannathan (HJ) distance that incorporates a no-arbitrage constraint. We show that for stochastic discount factors (SDFs) that are spanned by the returns on the test assets, testing the equality of HJ-distances with no-arbitrage constraints is the same as testing the equality of HJ-distances without no-arbitrage constraints. A discrepancy can only exist when at least one SDF is a function of factors that are poorly mimicked by the returns on the test assets. Under a joint normality assumption on the SDF and the returns, we derive explicit solutions for the HJ-distance with a no-arbitrage constraint, the associated Lagrange multipliers, and the SDF parameters in the case of linear SDFs. This allows us to show that nontrivial di_erences between HJ-distances with and without no-arbitrage constraints can only arise when the volatility of the unspanned component of an SDF is large and the Sharpe ratio of the tangency portfolio of the test assets is very high. Finally, we present the appropriate limiting theory for estimation, testing, and comparison of SDFs using the HJ-distance with a no-arbitrage constraint.

---

**Invited Speaker:** Stephen Brown, NYU Stern School of Business
"Measuring Hedge Fund Operational Risk"

Abstract

Due to imperfect transparency and costly auditing, trust is an essential component of financial intermediation. This is particularly true of hedge funds where favorable return attributes are offset by limited disclosure and significant operational risk. The challenge is to devise a quantitative measure of operational risk distinct from market risk. Our research finds that that operational risk is associated with conflicts of interest, misrepresentations by fund management, and the failure to use a major auditing firm. This is related to subsequent poor performance and is predictive of fund failure. Sophisticated investors understand this risk, but it does not in any way mediate the naive tendency of hedge fund investors to chase past high returns.

---

**JFEC Lecture:** Christian Gourieroux, CREST
"Microinformation, Nonlinear Filtering and Granularity"
*Co-authors: Patrick Gagliardini and Alain Monfort*

---

**Thursday June 17<sup>th</sup>**

Thijs Van Der Heijden, Tilburg University
"The Dynamic Mixed Hitting Time Model for Multiple Transaction Prices and Times"
*Co-authors: Eric Renault and Bas J.M. Werker*

Abstract

We propose a structural model for durations between events and associated marks. Our model is structural in the sense that both durations and marks are generated by an underlying Brownian motion. In particular, we model the durations as the successive passage times of this Brownian motion relative to in itself random boundaries. Additional Brownian motions serve as processes generating the marks, whose conditional distribution is a mixture of normals. Multivariate Brownian motions allow us to incorporate a vector of marks combined with a single duration generating process. Our model embeds in particular the standard autoregressive conditional duration model. Applied to high-frequency financial data, we derive the conditional distributions of the durations and the vector of price changes. A First empirical illustration, using transaction level data on a NYSE stock, rejects both the ACD specification and the assumption that price changes conditional upon the realized duration are normally distributed in favor of our model.

Pipat Wongsaart, The University of Adelaide and the University of Western Australia
"An Alternative Semiparametric Regression Approach to Nonlinear Duration Modeling: Theory and Application"
*Co-authors: David E. Allen and Jiti Gao*

Abstract
This paper puts forward an alternative semiparametric regression approach to a nonlinear ACD modeling. The semiparametric functional form on the dependence of the conditional intensity on past durations suggests that the model be called the Semiparametric ACD (SEMI-ACD) model. The development of the model relies on two important factors; namely (i) an iterative estimation algorithm, which is devised to address the latency problem arises because the conditional expectation of duration with respect to the past history is not observable in practice, and (ii) an adaptive estimation of a partially linear additive autoregressive process. The theoretical study of this paper involves two fundamental issues. The First and by far the most important is the statistical consistency of the estimation algorithm. Furthermore, to enrich the statistical rigor of the SEMI-ACD estimation procedure, the asymptotic properties of the semiparametric estimators are also established. These asymptotic results are presented in conjunction with simulated examples which illustrate a robust finite-sample performance of the model. Finally, the paper applies the SEMI-ACD procedure to model the price duration process of the $US/$EUR exchange rate.

Jose Gonzalo Rangel, Bank of Mexico
"High and Low Frequency Correlations in Global Equity Markets"
*Co-author: Robert F. Engle*

Abstract
We model high and low frequency variation in global equity correlations using a sample of 43 countries, including developed and emerging markets during the period 1995-2008. Such variations are characterized by a multifactor asset pricing structure with second-moments dynamics leading to high frequency correlations that mean revert toward the smooth low frequency ones. We correct for non-synchronous biases from using international returns at high frequencies. We find that global correlations showed a remarkable increase during the recent financial turmoil, but the effect was uneven across countries. Those that experienced the largest increases in both correlation components were mainly emerging markets.

Mathijs Cosemans, University of Amsterdam
"Long and Short Run Correlation Risk in Stock Returns"

Abstract
I study the pricing of long and short run components of correlation risk in the time series of aggregate market returns and in the cross-section of individual stock returns. I find that the predictive power of the market variance risk premium for the equity premium is completely driven by the correlation risk premium. Furthermore, I show that the long run component of market volatility risk is priced in the cross-section because of priced innovations in long-term idiosyncratic volatility and shocks to long-term market-wide correlations. In contrast, short run systematic volatility risk is only priced because of short-term correlation risk.

Mardi Dungey, University of Tasmania
"Observing the Crisis: Characterising the Spectrum of Markets with High Frequency Data, 2004-2008"
*Co-authors: Jet Holloway and Abdullah Yalama*

Abstract

Recent advances in the analytical tools available for high frequency data make it possible to characterise the high frequency data generating process of financial markets in a way not previously undertaken. This paper provides a thorough examination of the volatility and jump behaviour of secondary market Treasury transactions across the term structure from 2 year to 30 year constant maturity bonds based on the BGCantor database for the period from July 2004 to December 2008. A comparison of the data properties in the pre-crisis and global financial crisis period clearly reveals the increase in jump intensity during the crisis, but confirms the stability of other characteristics of the data generating process. The paper is currently being extended to clarify the properties of the test statistics and their small sample empirical outcomes, provide formal tests of change between crisis and non-crisis periods and applications to other financial market series.

Robin Lumsdaine, American University
"What the Market Watched: Bloomberg News Stories and Bank Returns as the Financial Crisis Unfolded"

Abstract

This paper explores a unique dataset gathered via Bloomberg during the early stages of the recent financial crisis. Unlike previous literature that has often used information on headlines as a metric for news, the dataset here contains information on readership and therefore provides a glimpse into the extent to which financial market participants were focused on the news of a particular firm as the financial crisis unfolded. By examining the news that captured the attention of these participants and exploring its relationship to bank returns, this paper addresses the role that market news and reputation may have had in shaping perception during the crisis. There is strong evidence that firms whose news elicited higher readership suffered significantly lower returns than those that did not, both contemporaneously and subsequently. Those banks that on average had relatively high readership interest, or that ranked highly in readership interest a large proportion of the days in the sample, on average had returns that were about 20 percentage points lower than banks that remained relatively out of the spotlight. In addition, greater news readership is associated with higher volatility of returns. A model portfolio that each day is short the ten banks' stocks that were in the top readership rankings the previous day and long the other stocks generates a cumulative P&L of 1.45% in the run-up to the crisis; during the same time period the S&P 500 Financials Index declined more than 39%. The results suggest that news stories that result in high readership among financial market participants can have a large effect in shaping the latter's perceptions and subsequent decisions. In addition to understanding the impact of firm "news" on equity prices as the crisis unfolded, there also may be significant implications for the release of information, and subsequent "news" reports, regarding borrowing of financial institutions from the Federal Reserve – issues raised in legal cases now before the courts (e.g., Bloomberg, L.P. v Board of Governors of the Federal Reserve System 2009, Fox News Network LLC v Board of Governors of the Federal Reserve System 2009).

**Invited Speaker:** Nikolaus Hautsch, Humboldt University
"Forecasting High-Dimensional Covariance Matrices"

Abstract

We model the dynamics of large-dimensional covariances on the basis of a hybrid-frequency spectral ecomposition. Covariance risk is decomposed into systemic and non-systemic risks and these components are allowed to evolve at different frequencies. Covariance forecasts are constructed based on predicted variances and eigenvalues which are projected on a slowly moving stable eigenvector basis. Well-conditioning of predicted covariances is ensured by an imposed factor structure where the number of factors is selected employing the criteria by Bai and Ng (2002). The underlying spectral decomposition is estimated based on high-frequency data employing the blocked realized kernel estimator proposed by Hautsch, Kyj and Oomen (2009). In an empirical application to GMV portfolios on the basis of the S&P 500 universe, we evaluate the performance of out-of-sample covariance predictions over horizons of a day, a week and a month and benchmark it against competing approaches. Moreover, we provide insights into the performance of alternative frequency mixtures, eigenvector and eigenvalue dynamics and the impact of the underlying large-dimensional (realized) covariance estimator.

---

Heather M. Anderson, Australian National University
"Do Jumps Matter? Forecasting Multivariate Realized Volatility Allowing for Common Jumps"
*Co-authors: Yin Liao and Farshid Vahid*

Abstract

Realized volatility of stock returns is often decomposed into two distinct components that are attributed to continuous price variation and jumps. This paper proposes a tobit multivariate factor model for the jumps coupled with a standard multivariate factor model for the continuous sample path to jointly forecast volatility in three Chinese Mainland stocks. Out of sample forecast analysis shows that separate multivariate factor models for the two volatility processes outperform a single multivariate factor model of realized volatility, and that a single multivariate factor model of realized volatility outperforms univariate models.

---

George Tauchen, Duke University
"Volatility in Equilibrium: Asymmetries and Dynamic Dependencies"
*Co-authors: Tim Bollerslev and Natalia Sizova*

Abstract

Stock market volatility clusters in time, appears fractionally integrated, carries a risk premium, and exhibits asymmetric leverage effects relative to returns. At the same time, the volatility risk premium, defined by the difference between the risk-neutral and objective expectations of the volatility, is distinctly less persistent and appears short-memory. This paper develops the first internally consistent equilibrium based explanation for *all* of these empirical facts. The model is cast in continuous-time and entirely self-contained, involving non-separable recursive preferences. Our empirical investigations are made possible through the use of newly available high-frequency intra-day data for the VIX volatility index, along with corresponding high-frequency data for the S&P 500 aggregate market portfolio. We show that the qualitative implications from the new theoretical model match remarkably well with the distinct shapes and patterns in the sample autocorrelations and dynamic cross-correlations in the returns and volatilities observed in the data.

---

Kevin Sheppard, University of Oxford
"Good Volatility, Bad Volatility: Signed Jumps and the Persistence of Volatility"
*Co-author: Andrew Patton*

## Abstract
This paper examines the role that negative returns and their associated volatility play in determining future volatility. Measures of quadratic variation are decomposed into signed components which are further decomposed into signed-jump and continuous components using a simple transformation. Using data for both the S&P 500 SPDR and the individual components of the S&P 100, we find that jumps play an important role in future volatility. Moveover, we document that the effect of jumps is highly asymmetric where negative jumps lead to long lasting - almost permanent - increases in volatility while positive jumps lead to long term lower volatility.

Fangfang Wang, University of Illinois, Chicago
"The HYBRID GARCH Class of Models"
*Co-authors: Xilong Chen and Eric Ghysels*

## Abstract
We propose a general GARCH framework that allows the use of different frequency returns to model conditional heteroskedasticity. We call the class of models **H**igh Frequenc**Y** Data-**B**ased P**R**oject**I**on-**D**riven GARCH models as the GARCH dynamics are driven by what we call HYBRID processes. We study three broad classes of HYBRID processes: (1) parameterfree processes that are purely data-driven, (2) structural HYBRIDs where one assumes an underlying DGP for the high frequency data and finally (3) HYBRID filter processes. We develop the asymptotic theory of various estimators and study their properties in small samples via simulations.

Anna Cieslak, University of Lugano
"Understanding the Term Structure of Interest Rate Volatility"
*Co-author: Pavol Povala*

## Abstract
We study and model the joint behavior of the yield and volatility curves. With almost two decades of highfrequency Treasury bond data, we obtain a detailed view of the comovement between the yield curve states, structure of volatilities and their interactions with interest rates themselves. With this insight, we design and implement a no-arbitrage model able to explain the dynamics and the cross-section of the two curves. While special restrictions (e.g., unspanned volatility) are not needed to attain this goal, the model's empirical success hinges upon two elements: (i) a multivariate volatility whose sources of shocks and persistence are detached from those spanning yields, and (ii) the identification of volatility states with the support of the realized covolatility proxies and filtering. The model decomposes interest rate volatility into three distinct elements: (i) a more erratic short-end state, (ii) a smoother long-end state, and (iii) a covolatility component capturing interactions between the long and the intermediate region of the curve. This decomposition of volatility aligns well with the roles of the respective yield curve states. We show that the model-implied factors carry an interpretation and feature different responses to the economic environment. Expectations and uncertainty about the future path of key macro aggregates—rather than their realized numbers—can explain up to 95% of the latent factor variation.

**Invited Speaker: Andrew Patton, Duke University**
"On the Dynamics of Hedge Fund Risk Exposures"
*Co-author: Tarun Ramadorai*

## Abstract

We propose a new method to capture changes in hedge funds' exposures to risk factors, exploiting information from relatively high frequency conditioning variables. Using a consolidated database of nearly 15,000 individual hedge funds between 1994 and 2009, we find substantial evidence that hedge fund risk exposures vary significantly across months. Our new method also reveals that hedge fund risk exposures vary within months, and capturing this variation significantly improves the fit of the model. The proposed method outperforms an optimal changepoint approach to capturing time-varying risk exposures, and we find evidence that there are gains from combining the two approaches. We find that the cost of leverage, the carry trade return and the recent performance of equity indices are the most important drivers of changes in hedge fund risk exposures.

---

**Friday, June 18th**

Christian Brownlees
"Volatility, Correlation and Tails for Systemic Risk Measurement"
*Co-author: Robert Engle*

Abstract
The Great Recession of 2007/2009 has motivated market participants, academics and regulators to better understand systemic risk. Regulation is now designed to reduce systemic risk. However it is not yet clear how to measure systemic risk and in particular to determine which firms are the major contributors to the overall risk of the economy. This paper focuses on constructing measures of systemic risk based on public market data and consequently provides a quick and inexpensive approach to determining which firms deserve more careful scrutiny and regulation. The measure examined in this paper is the Marginal Expected Shortfall or MES. This is the expected loss an equity investor in a financial firm would experience if the overall market declined substantially. This measure can then be extrapolated to estimate equity losses for this firm in a future crisis and consequently the capital shortage that would be experienced as a consequence of the initial leverage. The contribution to systemic risk is then estimated as the percentage of capital shortfall that can be expected in a future crisis. MES depends upon the volatility of a firm equity price, its correlation with the market return and the comovement of the tails of the distributions. These in turn are estimated by asymmetric versions of GARCH, DCC and non-parametric tail estimators. Empirical results with 102 US financial firms find predictability in both time series and cross section and useful ranking of firms at various stages of the financial crisis.
Michael Rockinger, University of Lausanne
"The Economic Value of Distributional Timing"
*Co-author: Eric Jondeau*

Abstract
We evaluate how non-normality of asset returns and the temporal evolution of volatility and higher moments affects the conditional allocation of wealth. We show that if one neglects these aspects, as would be the case in the typical mean-variance allocation, a significant cost would arise. The performance fee the investor is willing to pay to benefit from an allocation based on distribution prediction is as high as the fee she is willing to pay to benefit from volatility timing. Many tests of robustness are performed, yet, the economic value of taking the temporal evolution of the distribution into account remains.

---

Eric Ghysels, University of North Carolina, Chapel Hill
"Should Macroeconomic Forecasters Use Daily Financial Data and How?"
*Co-authors: Elena Andreou and Andros Kourtellos*

Abstract
There are hundreds of financial times series available on a daily basis that contain information about the future states of the economy. Can we efficiently use all this daily financial information for improving and/or updating

macroeconomic forecasts? The literature on macroeconomic forecasting has not address this question. Instead, it has focused on how the use of a small set of financial series - usually aggregated at a monthly or quarterly frequency. In the paper we introduce two methods for predicting inflation and real activity: (1) methods which rely on combinations of regressions that involve regressors with different sampling frequency, such as quarterly macro series and daily financial series and (2) a small set of daily financial factors extracted from the large cross-section of daily series along with quarterly frequency factors dominated by macroeconomic variables. Both methods have the following important features: (1) they allow us to clearly show the incremental value of daily financial series in terms of forecast improvements, (2) they provide a succinct summary of a huge amount of information in daily financial data, (3) they rely on extremely simple parsimonious regression methods that are easy to implement in practice. The analysis of daily financial factors are of independent interest and other potential applications too as they span equity premium, foreign exchange, fixed income and commodity price information.

---

**Invited Speaker: Guofu Zhou, Washington University**
"The State of Art in Forecasting Equity Risk Premium"

Abstract

Forecasting the equity risk premium is of considerable interest in finance, since the equity premium is central to, among other things, portfolio management and capital budgeting. In this presentation, we comprehensively review the empirical evidence on equity premium forecastability using macroeconomic and technical variables in domestic and international markets. We focus on recently developed approaches that deliver sizable and consistent forecasting gains. Throughout, we relate forecasting forecastability and forecasting approaches to theoretical asset pricing models. New directions for research are also discussed, including further refinements to existing approaches and the use of different data frequencies.

**Poster Session 1- Thursday, June 17th**

Bertille Antoine
"Efficient Minimum Distance Estimation with Multiple Rates of Convergence"
*Co-author: Eric Renault*

Abstract

This paper extends the asymptotic theory of GMM inference to allow sample counterparts of the estimating equations to converge at (multiple) rates, different from the usual square-root of the sample size. In this setting, we provide consistent estimation of the structural parameters. In addition, we define a convenient rotation in the parameter space (or reparametrization) to disentangle the different rates of convergence. More precisely, we identify special linear combinations of the structural parameters associated with a specific rate of convergence. Finally, we demonstrate the validity of usual inference procedures, like the overidentification test and Wald test, with standard formulas. It is important to stress that both estimation and testing work without requiring the knowledge of the various rates. However, the assessment of these rates is crucial for (asymptotic) power considerations.

Possible applications include econometric problems with two dimensions of asymptotics, due to trimming, tail estimation, infill asymptotic, social interactions, kernel smoothing or any kind of regularization.

Pierre Bajgrowicz
"Detecting Spurious Jumps in High Frequency Data"
*Co-author: Olivier Scaillet*

Abstract

We propose a technique to avoid spurious detection of jumps in high frequency data via an explicit thresholding on available test statistics. We prove that it eliminates asymptotically all spurious jumps. Monte Carlo results show that it performs also well in finite samples. Our empirical investigation of Dow Jones stocks reveals that the spurious detections represent up to 50% of the jumps detected initially. After eliminating the spurious detections with our method, the average number of jumps amounts to around 40 a year. For the majority of Dow Jones stocks, we do not detect clustering in time of jumps occurrences. During the three years of our study, we find no single cojump affecting all Dow Jones constituents. However, if we consider industry sectors separately, we observe a number of cojumps significantly larger than if the stocks were independent. Finally, we relate detected jumps to news releases.

Dominik Colangelo
"Option Trading Strategies Based on Semi-Parametric Implied Volatility Surface Prediction"
*Co-author: Francesco Audrino*

Abstract

We construct a set of trading strategies using predicted option returns for a forecasting period of ten trading days and form profitable hold-to-expiration, equally weighted, zero-cost portfolios with one month at-the-money options. A statistical machine learning procedure based on regression trees accurately predicts future implied volatility surfaces. These forecasts assist in obtaining reliable option returns used as trading signals in our strategies. We test the performance of the proposed strategies on options on the S&P100 and on its constituents between 2002 and 2006. Positive annualized returns of up to more than 50% are achieved.

Marcelo Fernandes
"Tailing Tail Risk in the Hedge Fund Industry"
*Co-authors: Walter Distaso and Filip Zikes*

Abstract

This paper aims to assess dynamic tail risk exposure in the hedge fund sector using daily data from September 2004 to May 2008. In particular, we model lower-tail dependence between hedge funds, bond, commodity, foreign

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

---

Kameliya Filipova
"Yield Curve Predictability, Regimes, and Macroeconomic Information: A Data-Driven Approach"
*Co-author: Francesco Audrino*

Abstract

We propose an empirical approach to determine the various economic sources driving the US yield curve. We allow the conditional dynamics of the yield at different maturities to change in reaction to past information coming from several relevant predictor variables. We consider both endogenous, yield curve factors and exogenous, macroeconomic factors as predictors in our model, letting the data themselves choose the most important variables. We find clear, different economic patterns in the local dynamics and regime specification of the yields depending on the maturity. Moreover, we present strong empirical evidence for the accuracy of the model in fitting in-sample and predicting out-of-sample the yield curve in comparison to several alternative approaches.

---

Constantinos Kourouyiannis
"Value at Risk and Expected Shortfall: A Forecast Combination Approach"
*Co-authors: Elena Andreou and Andros Kourtellos*

Abstract

The recent financial crisis that started in 2007 provides a challenge for improving or proposing new methods in risk management. We study two measures of market risk, Value at Risk and Expected Shortfall and show that various forecast combination methods provide more accurate forecasts. These methods address the model uncertainty due to alternative volatility model specifications and estimators, distributions of standardized returns and risk management methods. Our model space includes models from three alternative methods, parametric, filtered historical simulation and extreme value theory. We compare the out of sample performance of individual models and forecast combination methods using international stock market indices. Our empirical results show that individual models suffer from the problem of model risk and that forecast combinations can provide more accurate predictions of risk.

**Poster Session 2- Thursday, June 18<sup>th</sup>**

Claudio Morana
"The 2007-? Financial Crisis: A Money Market Perspective"
*Co-author: Nuno Cassola*

Abstract

The evolution of the spreads between unsecured money market rates of various maturities and central banks' key policy rates has been subject to considerable debate and controversy in relation to the worldwide financial market turbulence that started in August 2007. Our contribution to the ongoing debate on the dynamics of money market spreads is empirical and methodological, motivated by the "shocking" evidence of non-stationary behaviour of money market spreads. In fact, in our view, empirical work testing the effectiveness of central bank policies has largely overlooked the complexity of the market environment and its implications for the statistical properties of the data. Thus, our main goal is to carefully document the "fingerprint" of money market turbulence, in the framework of a new econometric framework, allowing to incorporate policy interventions as well, and therefore well suited for testing their impact, whilst carefully accounting for the persistence properties of the data.

---

André A.P. Santos
"Optimal Portfolios with Minimum Capital Requirements"
*Co-authors: Francisco J. Nogales, Esther Ruiz and Dick Van Dijk*

Abstract

The Basel II accord established that financial institutions must put aside an amount of regulatory capital based on their estimated value-at-risk (VaR) as a cushion for adverse market conditions. Existing empirical evidence, however, shows that banks systematically overestimate their VaR and the amount of regulatory capital, thus generating significant inefficiencies and economic costs. In this paper we propose a novel approach based on the Basel II capital requirement formula to obtain optimal portfolios with minimum capital requirements using the VaR estimates. We discuss some difficulties in the original formulation of the portfolios with minimum capital requirements and propose a way to overcome them. Finally, an application involving three data sets of real market data shows that the proposed approach delivers a much better balance between capital requirement levels and the number of VaR exceedances, along with a risk-adjusted performance net of transaction costs equivalent to the minimum-VaR and the 1/N portfolios, while reducing the number of VaR exceptions to a very reasonable level.

---

Tao L. Wu
"Nonparametric Interest Rate Cap Pricing: Implications for the 'Unspanned Stochastic Volatility' Puzzle"

Abstract

Asset prices depend on two elements: the dynamics of the state variables and the pricing kernel. Traditional term structure models differ in factor dynamics. However, most of them imply a log-linear pricing kernel. We investigate empirically the role of factor dynamics and pricing kernel in pricing interest rate derivatives using a non-parametric approach. We find that interest rate cap prices are very sensitive to the specification of factor dynamics, especially when they are close to expiration. In addition, nonlinear log-pricing kernels improve the pricing of long-maturity caps. Recent research document models that fit LIBOR and swap rates but do not price derivatives well, leading to the so called "unspanned stochastic volatility puzzle". Additional factors seem to be needed to explain cap prices. However, the relative mispricing between interest rate caps and underlying LIBOR and swap rates could also potentially be due to mis-specification of the parametric models used. Our paper provides evidence, from a nonparametric perspective, for the inability of diffusion-only type of models to price interest rate caps. Models with jumps such as that in Jarrow, Li, and Zhao (2007) appear to be needed to explain LIBOR option prices.

---

Yulia Veld-Merkoulova
"Investment Horizon and Portfolio Choice of Private Investors"

Abstract

I empirically investigate the impact of age and self-reported planning horizon on asset allocation decisions for a broad cross-section of individual investors. I find that age and investment horizon play different roles in determining investors' risky portfolios. When risky investments include real estate, the share of risky assets declines with age. Planning horizon tends to influence only investments in financial risky assets, such as stocks, options, and mutual funds. A longer planning horizon leads to an increasing share of risky financial investments, independent of investors' age.

Hefei Wang
"Leverage Management in a Bull-Bear Switching Market"
*Co-authors: Min Dai and Zhou Yang*

Abstract

We characterize an investor's optimal trading strategy with finite horizon and transaction costs in an economy that switches stochastically between two market conditions. We find that the investor's leverage and deleverage decisions depend crucially on the switch intensity between the two markets. We fully characterize the investor's time dependent investment strategy in a "bull" market with high risk premiums, and a "bear" market with low risk premiums.