



ABSTRACT

“Is a Normal Copula the Right Copula?”

Enrique Sentana (with Dante Amengual)

Nowadays copulas are extensively used in economic and finance applications, with the Gaussian copula being very popular despite ruling out non-linear dependence, particularly in the lower tail. We derive computationally simple and intuitive expressions for score tests of Gaussian copulas against Generalised Hyperbolic alternatives, which include the symmetric and asymmetric Student t, and Hermite polynomial expansions. We decompose our tests into third and fourth moment analogues, and obtain more powerful one-sided Kuhn-Tucker versions that are equivalent to the Likelihood Ratio test, whose asymptotic distribution we provide. We conduct detailed Monte Carlo exercises to study our proposed tests in finite samples.

“Risk Adjustment and the Temporal Resolution of Uncertainty: Evidence from Options Markets”

Ivan Shaliastovich (with Darien Huang)

Risk-neutral probabilities, observable from options data, contain information on both physical probabilities and risk adjustments. Under further assumptions on the preference structure, such as expected utility, the two quantities can be separately identified from risk-neutral probabilities alone. We extend a market-based recovery approach to recursive utility which allows for a preference for the timing of the resolution of uncertainty. We implement our framework using S&P 500 index options and find that the data strongly supports a specification with a preference for early resolution of uncertainty. Both empirically and in our economic model, we show that failure to account for the magnitude of the preference for early resolution of uncertainty can significantly overstate the implied probability of bad events, understate risk compensations, and as a consequence under-estimate average market returns.

“Liquidity Risk Estimation in Conditional Volatility Models”

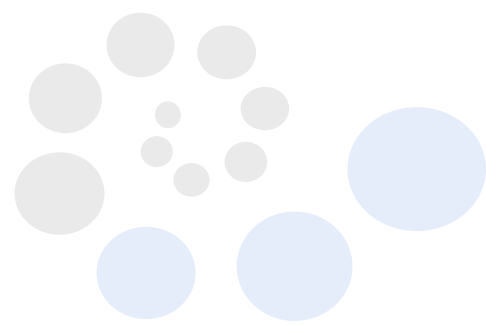
Serge Darolles (with Christian Francq, Gaëlle Le Fol, and Jean-Michel Zakoian)

Until recently, the liquidity of financial assets has typically been viewed as a second-order consideration in the asset-management industry. Liquidity was frequently associated with simple transaction costs that impose little effect, temporary if any, on asset prices and whose shocks could be easily diversified away. Yet, the evidence, especially the recent liquidity crisis, suggests that liquidity is now a primary concern. This paper aims at proposing a static liquidity risk measure leading to a better evaluation of the latter risk by distinguishing the market volatility shocks with persistent effects from liquidity shocks with temporary effects. This approach will allow isolating the liquidity risk even in the case where volumes are not observed.

“Optimal Moment-based Tests for Distributional Assumptions”

Christian Bontemps (with Jean-Marie Dufour and Nour Meddahi)

In this paper we aim at testing a distribution against a specific one using moment based tests. Point optimal moments are characterized in different contexts ; in the i.i.d. case, when there is parameter uncertainty and when there is serial correlation among the data. We know that the Neyman-Pearson Lemma does not hold in the two last cases. We run Monte Carlo simulations in these different contexts to assess the power properties of our point optimal moments. Our procedure, though less efficient than the NP test, does a very good job in the i.i.d case without parameter uncertainty. It is also quite powerful in the other contexts.



“Large Tick Assets: Implicit Spread and Optimal Tick Size”

Mathieu Rosenbaum (with Khalil Dayri)

In this work, we provide a framework linking microstructural properties of an asset to the tick value of the exchange. In particular, we bring to light a quantity, referred to as "implicit spread", playing the role of spread for large tick assets, for which the effective spread is almost always equal to one tick. The relevance of this new parameter is shown both empirically and theoretically.

This implicit spread allows us to quantify the tick sizes of large tick assets and to define a notion of "optimal tick size". Moreover, our results open the possibility of forecasting the behavior of relevant market quantities after a change in the tick value and to give a way to modify it in order to reach an optimal tick size. Thus, we provide a crucial tool for regulators and trading platforms in the context of high frequency trading.

“Identifying Taylor Rules in Macro-Finance Models”

Mikhail Chernov (with David Backus and Stanley Zin)

Identification problems arise naturally in forward-looking models when agents observe more than economists. We illustrate the problem in several macro-finance models with Taylor rules. When the shock to the rule is observed by agents but not economists, identification of Taylor rule parameters requires restrictions on the form of the shock.

“A Classical Moment-Based Approach with Bayesian Properties: Econometric Theory and Empirical Evidence from Asset Pricing”

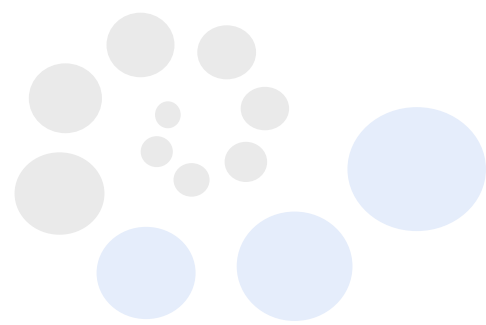
Benjamin Holcblat

Consumption-based asset pricing and other areas have been a challenge to existing inference theories. In this paper, we develop a classical moment-based inference framework with Bayesian properties to tackle this challenge. We prove that there exists an intensity distribution of the solutions to empirical moment conditions over the parameter space. We approximate it thanks to the empirical saddlepoint (ESP) technique. We call the result the ESP intensity. A higher ESP intensity value indicates a higher estimated probability weight of being a solution to the empirical moment conditions. We propose to use the ESP intensity in the same way as posteriors are used in Bayesian inference to obtain point estimators, confidence regions, and define tests. We call this the ESP approach, and explain the rationale behind it. We prove the counterpart of Doob's theorem (i.e., consistency) and Bernstein-von Mises' theorem (i.e., asymptotic normality) for the ESP intensity. The ESP approach provides a unique answer to multiple concerns especially acute in consumption-based asset pricing, such as lack of identification and multiple hypothesis testing on the same data set. It also sheds a new light on consumption-based asset pricing, and, in particular, indicates that consumption-based asset pricing theory is more consistent with data than existing inference approaches suggest.

“Nets: Network Estimation for Time Series”

Christian Brownlees (with Matteo Barigozzi)

This work proposes novel network analysis techniques for multivariate time series. We define the network of a multivariate time series as a graph where nodes denote the components of the process and edges denote nonzero long run partial correlation between two components. Long run partial correlation is a comprehensive measure of cross-sectional conditional dependence for time series that captures contemporaneous as well as lead/lag relations. We then introduce an algorithm called nets based on a two step lasso regression that allows to estimate large sparse long run partial correlation networks. The procedure is based on a var approximation of the process and its spectral density. The large sample properties of the estimator are analysed and we establish conditions for consistent selection and estimation of the nonzero long run partial correlations. The methodology is illustrated with an application to a panel of U.S. bluechips. The risk of monthly equity returns is decomposed in a systematic and an idiosyncratic components and nets is used to analyse the network structure of the idiosyncratic part. The empirical analysis shows that the idiosyncratic risk network captures a significant portion of the total risk and that it exhibits several of the empirical regularities found in social networks.



“Expecting the Fed”

Pavol Povala (with Anna Cieslak)

After the creation of the Fed, a few distant lags of the short rate help predict future short rate changes even after conditioning on the information in today's yield curve. We explain this fact with the presence of frictions in short rate expectations formed by the private sector, which we measure using surveys. This expectations channel introduces a wedge between the time series dynamics and the cross section of yields, through which monetary policy delivers persistent surprises to the public. While agents' forecast errors about monetary policy are ex post predictable with lagged information, people do not make obvious mistakes. Fed staff's predictions have similar properties, and sophisticated statistical models fail to beat surveys in real time. In the last three decades, forecasters' errors about the short rate comove strongly with those about unemployment and less so inflation. Real activity proxies that predict realized bond returns, pick up their ex ante unexpected component that is orthogonal to measures of time-varying risk premia in the yield curve.

“Funding Liquidity Risk and the Cross-Section of Stock Returns”

René Garcia (with Jean-Sébastien Fontaine and Sermin Gungor)

Theory predicts that frictions in the funding markets of intermediaries should transmit to the cross-section of equities. Stocks that experience low returns when funding becomes scarce should exhibit higher illiquidity, higher volatility and ultimately higher risk premium. In this paper, we document this mechanism empirically. We show that the illiquidity and volatility of individual portfolios are positively associated with the value of funding liquidity, a measure of funding scarcity, while the portfolio returns are negatively correlated. In addition, the cross-section dispersion of illiquidity, volatility, and returns widens when funding conditions deteriorate. We find that this risk is priced. The funding liquidity risk premium explains the cross-section of returns across liquidity-, volatility-, and size-sorted portfolios. Overall, our results provide strong support for the prediction that funding liquidity plays a significant role in the determination of equity liquidity, volatility, and risk premium.

“Specification Analysis of International Treasury Yield Curve Factors”

Fulvio Pegoraro (with Andy Siegel and Luca Tiozzo Pezzoli)

We show how to compute patterns of variation over time, both among and within countries, that determine the international term structure of interest rates, using maximum likelihood within a linear Gaussian state-space framework. The simultaneous estimation of common factors (shared by all countries) and local factors (specific to one country) requires development of a normalization procedure beyond that of ordinary factor analysis. By jointly estimating common and local factors we avoid sequential estimation effects that may explain the lack of agreement in the multi-country term structure literature regarding not only the total number of latent factors required to explain the joint dynamics of yield curves, but also the number of common and of local factors. Using data on international yield curves of U.S., Germany, U.K. and Japan from January 1986 to December 2009, we generally find (analyzing yields in level and in difference) that a model with two common factors is preferred to a model (of similar complexity) that includes one common factor only or a model with only correlated local factors. We also find that each common factor closely mimics a local factor extracted from a pure local factor model. We reach the conclusion that commonality are driven by a preferred set of two common factors and by the strong correlation between local factors of different countries, and that the former are spanned by (identified with) local factors.