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Dueling policies: why systemic risk taxation can fail
Jakob Bosma (ING)
Standard conjectures on macroprudential policy are that more systemic risk taxation and higher capital requirements discourage financial institutions from taking on correlated investments and thereby lower systemic risk formation. However, in a game-theoretic setting I demonstrate that these policies can reveal the likelihood with which institutions may expect to receive bailout support, and thereby exacerbates the very outcome it sets out to curtail. This finding identifies a weakness in the systemic risk regulation policies, and is driven by the fact that institutions can alter the compositions of their asset portfolio after the regulation is implemented and before any bailouts are issued.

New developments in risk modelling: affine models
Peter den Iseger (ABN AMRO)
We will present a class of models that is gaining traction in the financial industry, so called affine models. Affine models are able to bridge the gap between the risk neutral measure (used to price financial products) and the real-world measure (used for risk management).
Not only does this allow us to calibrate financial models to the market's perception on value and risk using readily available prices of swaps, swaptions and cap/floors, but it also enables us to risk model the dynamics of the underlying curves and volatility surfaces.
Affine models have some additional nice properties: since under an affine process (semi-)analytical solutions exist for the prices of instruments, Monte Carlo simulation can largely be avoided, leading to faster calculations. Affine models encompass a broad class of models and many existing models can be incorporated in the framework.
ABN AMRO Market and ALM/T Risk modelling is using the theory of affine models in our development of new generation Monte Carlo counterparty risk models and in the development of a new scenario model for balance sheet risk management.

Models @ IMC
Rik Ghijsels (IMC)
IMC is a technology-driven trading firm. IMC develops innovative technology and employs advanced trading strategies to make markets on more than 100 of the world's best-regulated trading venues. This presentation will give a bit of insight in IMC's business. Some extra attention goes to how models and quantitative techniques are used in different parts of its business.

Standardised approach for CVA: pricing and risk with adjoint differentiation
Christian Kahl (FINCAD)
Equity capital requirements under the standard approach for market risk and credit valuation adjustment (SA-TB) and (SA-CVA) respectively require significant computation resources. Adjoint differentiation would offer significant performance benefits and thus institutions would consider either internal implementation or vendor based solutions. In this talk we discuss variations of adjoint differentiation and other hardware acceleration techniques such as GPU's and FPGA's addressing the performance challenges.

Comprehensive capital analysis and review (CCAR)
Sjors van der Stelt (Deloitte)
Under the comprehensive capital analysis and review (CCAR) set out by the Federal Reserve all bank holding companies (BHCs) are liable to consider three future scenarios: baseline, adverse and severely adverse. Based on these scenario's, BHCs will compute potential losses leading to potential capital charges. The regulatory body prescribes the stress scenario's in the form of macroeconomic time series, while each BHC Is asked to use their own scenario's for the model development in addition.
In this talk we will discuss CCAR and its impact for model development and data sourcing. We will explain how it compares to stress tests introduced by the ECB and argue its relevance for (continental) Europe, as many banks headquartered in Europe have a considerable market share in the U.S.

Machine learning algorithms for risk management in trading activities
Ioannis Anagnostou (ING)
Big data techniques and machine learning have emerged as a key aspect of analytics in multiple domains. BigDataFinance 2015–2019, a H2020 Marie Sklodowska-Curie Innovative Training Network, provides doctoral training in sophisticated data-driven risk management and research at the crossroads of finance and big data. The emphasis is put on exploiting data analytics techniques to manage and use datasets that are too large and complex to process with conventional methods. Machine learning has been a buzzword for the quantitative finance community and is receiving increasing attention from banks and financial

institutions in the post-crisis world. This talk will give a high-level overview of this research program and provide some first ideas on how machine learning algorithms can be used in the context of trading and risk management with the emphasis to identify market regimes and to discover previously unknown relationships between events and market performance.

Things a TopQuant rarely talks about

Roger Holtus (Kleynen Consultants) and Antoon Pelsser (Kleynen Consultants, Maastricht University)

In this presentation we want to share our personal experience with the impact that "soft stuff" can have on building a more effective quant team. Within our team we have spent quite some time on talking about our personal standards and values, and also about the things we aspire in our personal life and professionally. These are topics we rarely talk about as quants. However, we have found that these discussions have greatly helped us in our daily professional work. We have written an account of this journey in the booklet "Whizzkids United".

Model risk and robustness of quadratic hedging strategies

Asma Khedher (University of Amsterdam)

The recent financial crisis taught the following two things. First, models based on continuous processes are not satisfactory for pricing highly structured financial derivative products. Second, the estimation of the risk related to the choice of the model cannot be neglected. Thus, the jumps in the prices of the underlying assets as well as the estimation of the risk must be taken into account.

We aim at studying models which contain jumps, developing (partial) hedging strategies, and measuring the remaining unhedgeable risk. The problem of (partial) hedging is related to the study of backward stochastic differential equations (BSDEs) which we intend to develop in this presentation. Further, practice deals with actions discrete in time while theory develops continuous-time models. We will study the time-discretization of these BSDEs with jumps. The error will be estimated. Finally, the performance of different hedging strategies will be studied under the time-discretization.

Liquidity risk modelling in CSA derivative portfolio(s)

Stratos Nikolakakis (ABN AMRO)

Collateral management has become a sophisticated discipline within Banks. This presentation proposes a framework for estimating the liquidity risk in the derivatives contracts under collateral agreements. More specifically, we will discuss the techniques for estimating the projected liquidity profile of CSA portfolio(s) using a variation margin model. In addition, best practices in managing and optimizing collateral allocation will also be explored.

Capital framework of defaulted assets under IRB

Florian Reuter (Deloitte) and Mart Stokkers (Rabobank)

Studies on the variability of risk-weighted assets among banks have shown that differences in the treatment of defaulted assets are a large contributor of excessive variability in credit risk capital requirements. Florian Reuter and Mart Stokkers jointly present on the treatment of defaulted assets. In this session we discuss the capital framework of defaulted assets under IRB and how this relates to provisioning. We also present an overview of model approaches for the core models for defaulted assets: Expected loss best estimate (EL_{BE}) and LGD in-default.