

Equity Index Derivatives in Investment Strategies and Asset Allocation

Quantitative Finance Research Group
University of Warsaw

Warsaw, 13th October 2014



- Quantitative Finance Research Group at University of Warsaw started its activities in 2010.
- Back in 2009 we launched Quantitative Finance Master program at the Faculty of Economic Sciences.
- Main purpose of QFRG was to combine activity of academic staff with students and financial industry in order to apply financial tools and implement theories in the real world.

In the late 2010 we started two research projects, supported by Eurex Group

① **Replicating Hedge Fund-Like Mutual Fund Strategies using Eurex products**

- First stage: extraction of asset classes (using the multi-factor performance attribution model) in which hedge fund-like mutual funds invest.
- Second stage: Do we get any diversification benefit (using the Markowitz model) from extending these asset classes by derivatives traded on Eurex?
- The results suggest that incorporation of the Eurex products into the universe of investable assets is capable of improving Sharpe ratios of Multi-Strategy, Managed Futures and Emerging Markets funds.

② Replicating mutual fund strategies using linear regression models

- How to use selected derivatives contracts traded on Eurex Exchange to replicate the structure mutual funds strategies?
- We introduce a concept of linear regression models which replicate selected mutual funds strategies.
- Chow Test and Quandt Test are used to find structural breaks in the regression parameters.
- Results suggest that identification of structural breaks allow investors to replicate mutual funds strategies more accurately using Eurex products.

- Opened in 2013, together with OSTC Poland.
- Equipped with high-end computers and world-class software.
- Real-time access to over 100 derivatives from world's largest derivatives exchanges, including CME Group, Liffe, InterContinental Exchange and the Montreal Exchange
- Excellent opportunity for students to simulate trading strategies on real-time data.

- Project has been started in early 2014.
- The purpose is to extend the time series momentum model towards a **generalized momentum model of asset allocation** by combining mean, variance, skewness and kurtosis into one composite function by utilizing 26 MSCI Indexes.

Activity of the QFRG focuses on several aspects:

- scientific projects based on grants funded by our sponsors from financial industry,
- practical implementation of financial theories and tools to solve investments dilemma,

We encourage all interested to cooperate with QFRG in areas which require scientific investigations!

Agenda of the Conference I

- 17.00-17.15 - Reception desk and coffee
- 17.15-17.25 - Conference opening
- 17.25-17.55 - **Dr. Murat Baygeldi**, Senior Vice President Business Development at Eurex, *Eurex Equity Index Products*
- 17.55-18.25 - **Dr. Piotr Arendarski, Tomasz Skoczylas, Robert Wojciechowski**, QFRG, University of Warsaw, *Generalized Momentum Asset Allocation using MSCI indexes licensed by Eurex Exchange*
- 18.25-18.45 - Coffee break

- 18.45-19.15 - **Klaudia Jażdżyk**, OSTC Poland, *OSTC: Trading in Practice*
- 19.15-19.35 - **Dr. Krzysztof Urbanowicz**, Quant Technology, *Options pricing using OBV method*
- 19.35-20.05 - **Marcin Chlebus**, University of Warsaw, *Value at Risk Estimation in Turbulent and Tranquil States*
- 18.20-18.30 - Final remarks and conference closing

- We invite new members: students, graduates, phd students, researchers, practitioners from financial institutions.
- The objective is to provide a place to share ideas and experience, to discuss extensions of the research and possible practical applications of results.

Thank you!

Quantitative Finance Research Group
<http://qfrg.wne.uw.edu.pl>

