

# How to Effectively Replicate Hedge Funds Strategies Using Eurex Products?

Quantitative Finance Research Group

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# Changing landscape of investment industry

- Landscape of investment industry has changed at the beginning of 21 century.
- Substantial change of the attitude of individual and institutional investors.
- Are the old-fashioned „buy-and-hold” strategies are still profitable in the new environment?
- Economy cycles started to be much shorter.
- We move faster from the high to low volatility periods .
- Recently, investors realized that assumptions of almost all financial models are indeed not valid, especially in the time of sudden crash.

# Why hedge funds industry is so popular today?

- Hedge funds investment profile is not available for investment professionals nor individual investors.
- Everyone wants to move the efficient frontier in the upper direction.
- This is possible when we enhance our portfolio with new instruments with different investment profile.
- Current financial markets give us such opportunity!
- The biggest challenge: how to adequately choose these instruments and construct our portfolio including new investment opportunities?

- QFRG was launched exactly two years ago.  
⇒ One year after we had launched Quantitative Finance program at the Faculty of Economic Sciences at the post graduate level.
- Main purpose of QFRG was to combine activity of academic staff with students and financial industry in order to implement financial tools and theories in the real world.

# What after the first project?

Future activity of the QFRG will focus on several aspects:

- scientific projects based on grants funded by our sponsors from financial industry,
- practical implementation of financial theories and tools in order to solve real live investments dilemma,
- macro data forecasting based on the in-house econometric models.

We encourage all of you to cooperate with QFRG in many various fields which require scientific investigations!

Based on our agreement with Deutsche Börse AG and EUREX we have started in the late 2010 two research projects.

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

- The project consists of two parts.
- First: extraction of asset classes (using the multi-factor performance attribution model) in which hedge fund-like mutual funds invest.
- Second: 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.

# Agenda of the Conference I

- 14.00-14.10 - Reception desk
- 14.10-14.20 - Opening remarks: QFRG
- 14.20-14.50 - **Deepesh Shah**, VP Business Development, EUREX: EUREX/Deutsche Börse activities focused on cooperation of business and science
- 14.50-15.20 - **QFRG Group #1**, University of Warsaw: Replicating Hedge Fund Strategies using Eurex products
- 15.20-15.50 - **Dr. Piotr Wójcik**, University of Warsaw, High-Frequency Data Modelling with R software
- 15.50-16.05 - Coffee break



# Agenda of the Conference II

- 16.05-16.35 - **Renaud Huck**, SVP Buy-Side Relations, Head of UK Institutional Investor Relations, EUREX, The changing nature and landscape of the European hedge fund industry
- 16.35-17.05 - **QFRG Group #2**, University of Warsaw: Replicating long/short hedge fund strategies using time-varying linear regression models
- 17.05-17.20 - Coffee break

# Agenda of the Conference III

- 17.20-17.50 - **Dr. Ian Firla**, OSTC Poland: Potential careers in global trading for quantitative specialists. Application of quantitative methods in in real-world trading scenarios
- 17.50-18.20 - **Dr. Piotr Arendarski**, University of Warsaw, Forecasting of time-series using methodology based on ARIMA models and genetic programming
- 18.20-18.30 - Final remarks

# Future prospects and expectations

- We hope the presented results will be interesting to the listeners.
- We invite new members: students, graduates, phd candidates, researchers, financial institutions representatives.
- Starting with January, our meetings will be held every second week.
- The objective is to provide a place to share ideas, 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>

