



# Portfolio Optimization Workshop

THEORY AND PRACTICE OF PORTFOLIO OPTIMIZATION WITH MOSEK  
Copenhagen, November 18<sup>th</sup> 2021

Program:

- **An introduction to portfolio optimization using MOSEK.**

*Gábor Balló, Optimization Specialist at MOSEK*

We will introduce the three simple equivalent forms of the Markowitz (or mean-variance, MVO) portfolio optimization problem, and discuss its conic formulation. Then we go through detailed examples of modeling them in MOSEK Fusion API, and computing the efficient frontier. Finally, we will present three extensions: factor models, transaction cost and market impact, and benchmark relative optimization.

- **Advanced topics in portfolio optimization.**

*Michał Adamaszek, Optimization Specialist at MOSEK*

We continue the topic of portfolio optimization with more focus on the implementation techniques using primarily MOSEK Fusion API. With the factor model as a running example we will show how to add various constraints, parameterize the model to solve it with varying data and use the mixed-integer optimizer for combinatorial constraints such as buy-in thresholds. Along the way we will also discuss how to recognize and handle unexpected situations such as numerical issues and infeasibility reports.

- **Tracking error and portfolio construction.**

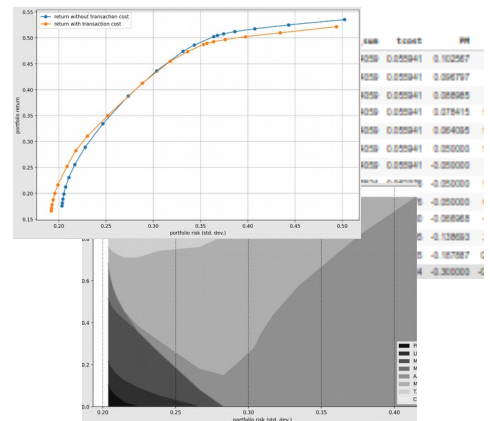
*Mads Stenbo Nielsen, BankInvest*

Portfolio construction in a global setting with 2,000+ investable assets poses several challenges due to the sheer size of the investment universe. One such challenge is how to control the portfolio's tracking error relative to a given benchmark. We consider how to set up a large-scale portfolio optimization problem that includes tracking error constraints and discuss various operational aspects of the optimization problem. A talk by an invited industry speaker.

- **MOSEK licensing options and developments. The Portfolio Optimization Cookbook.**

*Erling D. Andersen, CEO of MOSEK*

*Daniel Kuni Buccoliero, Sales Engineer at MOSEK*



Details:

- Free and open to all but registration is required. Registration form: <https://forms.gle/xvKBRRfep5Fze7SR9>
- More: [www.mosek.com](http://www.mosek.com), [info@mosek.com](mailto:info@mosek.com).
- Place: Fruebjergvej 3, Symbion Science Park, 2100 Copenhagen, Denmark
- Time: Thursday, November 18th 2021, 10am - 3pm