

## 2 - Day Workshop: Real Estate Portfolio Management and Asset Allocation

### Course objectives

The workshop “Real Estate Portfolio Management and Asset Allocation” deals with real estate as an asset class and how to achieve an optimal risk/return relationship when including real estate - and infrastructure as a sub-asset class - in asset allocation. The course is structured to also present a recap of modern investment management but with a concentration on the mathematical aspects of asset allocation. Focus of this workshop is the practical application of the learned concepts and the interpretation of the results.

The workshop presents first the necessary performance and risk measures in order to understand the ideas of modern portfolio management like diversification, efficient frontier and capital asset pricing model (CAPM) thereafter. Thereafter, it will present the various forms of real estate investments in detail, looking at their characteristics and risk/return properties. Finally, we look into asset allocation using real estate and infrastructure as asset classes.

### Workshop background

How to construct an investment portfolio in the best possible way is the key question of each investor, let it be a private person or an institution. But what does “best” mean and how can the “quality” of a portfolio be measured? The workshop will deal with these questions in detail, focusing on real estate investing and starting with the idea of risk and return of an investment.

When including real estate investments into a portfolio, this asset allocation decision follows the Markowitz approach which will be presented with applications. The center of this workshop, real estate investments, will be embedded into this asset management concept and we will show how the various forms of real estates can benefit the overall portfolio. The analysis of implied risks will also be a key part of this workshop and we will see how those can be measured in the real estate space. Finally, a short introduction to infrastructure investments will be provided as a popular way to invest in real assets.

### Who for?

The workshop is designed for middle and senior level managers working in finance, asset and risk management who want to get a structured introduction to real estate portfolio management.

This workshop is very interactive. This means that the concepts will be presented with many applications which are explained by the trainer and by using many exercises that have to be solved by the participants with the trainer’s support. Case studies will be used to enhance the learning effort.

This workshop is on an intermediate to advanced level. No prior knowledge on the subjects is required but a sound interest in investment management is needed. All mathematical knowledge to understand the presented formulas will be introduced. However, high school level mathematics and some familiarity with Excel formulas and calculations is highly recommended in order to understand the ideas for single parts of this workshop.

### Benefits of the workshop

The workshop will enable you to:

- Apply the idea of risk and return to the asset class “real estate” and to asset allocation studies.
- Understand the key terminology in real estate asset management, and how they are linked.
- Learn the mathematical concepts to construct optimal portfolios which include real estate as an asset class via the Markowitz optimization approach.
- Get familiar with the idea of diversification between the different asset classes.
- Acquire a thorough understanding of the key risk and return characteristics of public and private real estate and the various ways of investing in them.
- Look into the characteristics of residential and commercial real estate.
- See how REITs work and what their risk/return attributes are.
- Understand the key ideas of infrastructure investing.

## Workshop agenda

The workshop covers the concepts of real estate portfolio management in its various aspects and in the context of asset allocation. During these 2 days, real estate investments will be presented in detail and how they can be included in a portfolio management and asset allocation framework. All this will be presented together with the necessary prerequisites in an interactive way. The course is designed around many exercises and practical cases.

Day 1		Day 2	
09.00 – 09.15	Introduction and course description	09.00 – 09.15	Recap of day 1
09.15 – 10.45	Key terminology used in asset management and for real estate: <ul style="list-style-type: none"> <li>• Index, benchmark and market</li> <li>• Capitalization</li> <li>• Styles</li> <li>• Track record</li> <li>• Open-end, closed-end</li> <li>• Etc.</li> </ul>	09.15 – 10.45	Case study “U.S. housing bubble”
10.45 – 11.15	Coffee break	10.45 – 11.15	Coffee break
11.15 – 12.45	Performance and risk measurement: <ul style="list-style-type: none"> <li>• Measures for absolute return strategies               <ul style="list-style-type: none"> <li>- Return calculation</li> <li>- Volatility</li> <li>- Covariance, correlation</li> <li>- Sharpe ratio</li> </ul> </li> <li>• Measures for relative return strategies vs. index:               <ul style="list-style-type: none"> <li>- Alpha</li> <li>- Tracking error</li> <li>- Information ratio</li> <li>- Beta</li> </ul> </li> </ul>	11.15 – 12.45	Real estate investment trusts (REITs): <ul style="list-style-type: none"> <li>• What are REITs?</li> <li>• Advantages of REITs</li> <li>• Disadvantages of REITs</li> <li>• Basic investment types of REITs</li> <li>• REIT structures</li> </ul> Real estate indices: <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Valuation Methods</li> <li>• Featured Indices</li> </ul>
12.45 – 14.00	Lunch break	12.45 – 14.00	Lunch break
14.00 – 15.30	The Markowitz approach in asset allocation: <ul style="list-style-type: none"> <li>• The idea of diversification</li> <li>• Efficient frontier</li> <li>• Minimum variance portfolio</li> <li>• Capital asset pricing model (CAPM)</li> <li>• The math behind: how to calculate an efficient frontier and to determine the optimal asset allocation</li> </ul>	14.00 – 15.30	Infrastructure as an asset class <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Infrastructure investments</li> <li>• Performance</li> </ul>
15.30 – 16.00	Coffee break	15.30 – 16.00	Coffee break
16.00 – 17.00	Introduction to real estate: <ul style="list-style-type: none"> <li>• Real estate as an asset class</li> <li>• Categories of real estate</li> <li>• Ways of investing in real estate</li> <li>• Real estate investment styles</li> </ul>	16.00 – 17.00	Case study “asset allocation”:  Construction of an Excel sheet to do Markowitz optimization in an asset allocation case study which includes real estate, infrastructure and other asset classes

### Disclaimer

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