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# Computational Investing, Part I

## ***112: Portfolio Optimization and the Efficient Frontier***

*Find out how modern electronic markets work, why stock prices change in the ways they do, and how computation can help our understanding of them. Learn to build algorithms and visualizations to inform investing practice.*

# What is portfolio optimization?

## Given:

- ⦿ A set of equities, and
- ⦿ Target return

## Find:

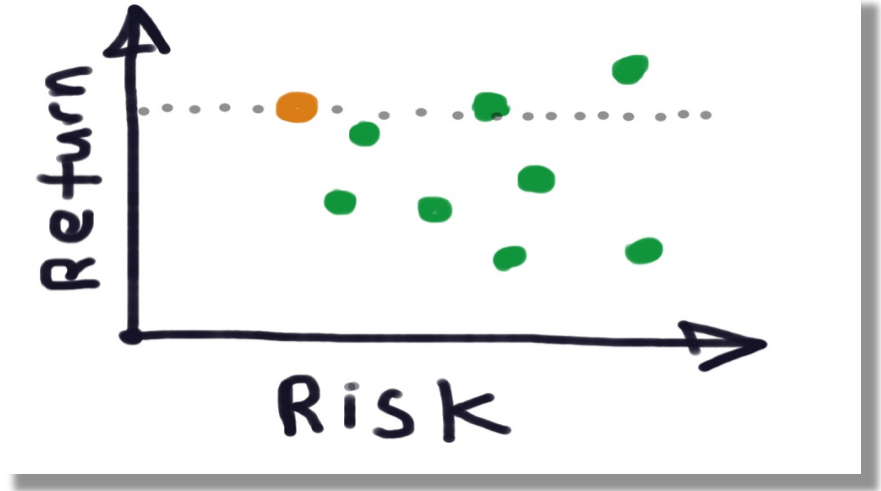
- ⦿ Allocation to each equity that minimizes risk

## Inputs:

- Expected return for each Equity
- Volatility (risk) for each equity
- Target return
- Covariance matrix

## Output

- Portfolio weights that minimize risk for target return

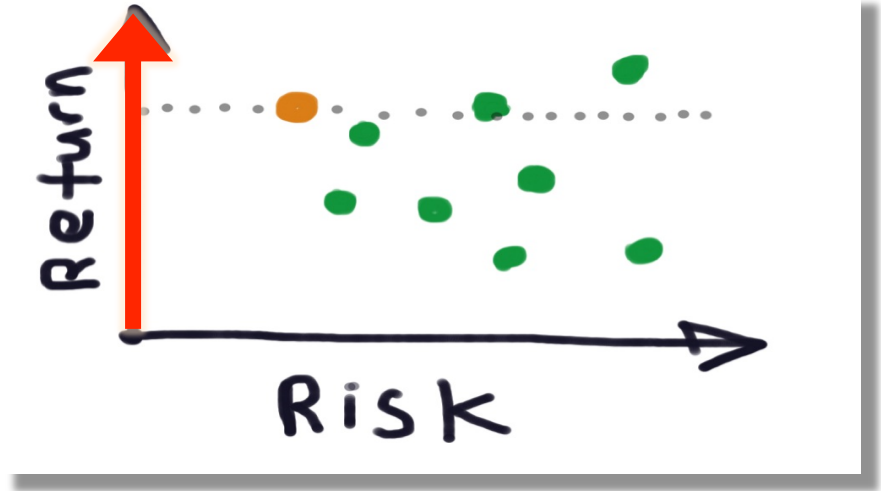


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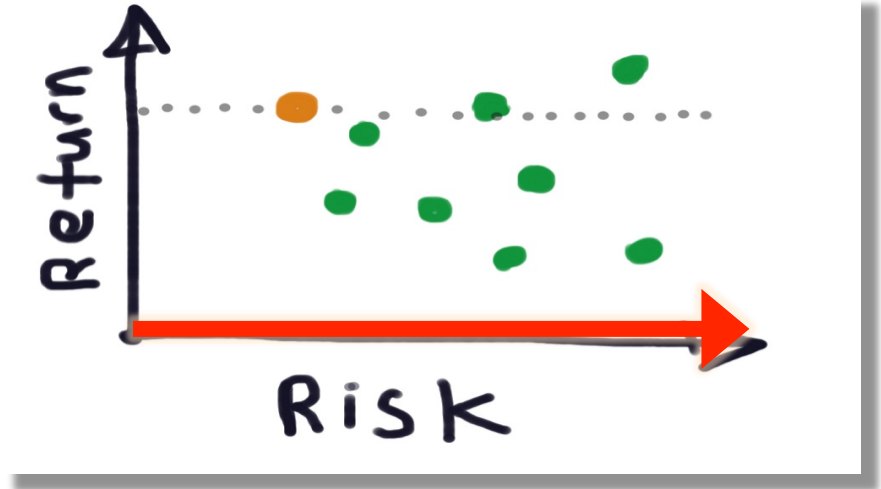


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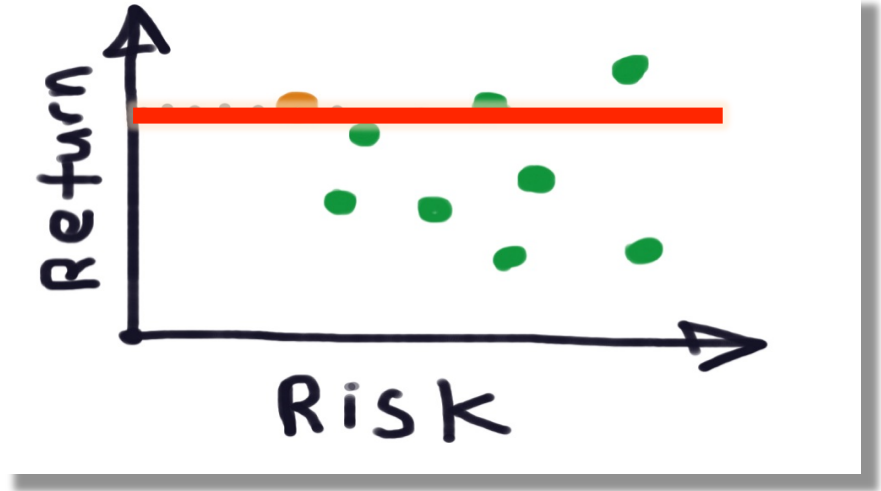


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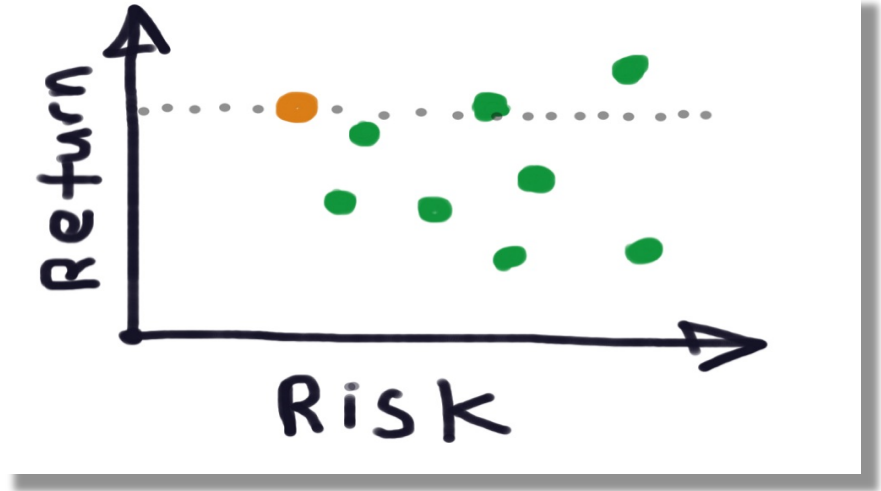


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