STICK IT OUT OR EVEN IT OUT?

Towards a robust multi-period efficient frontier

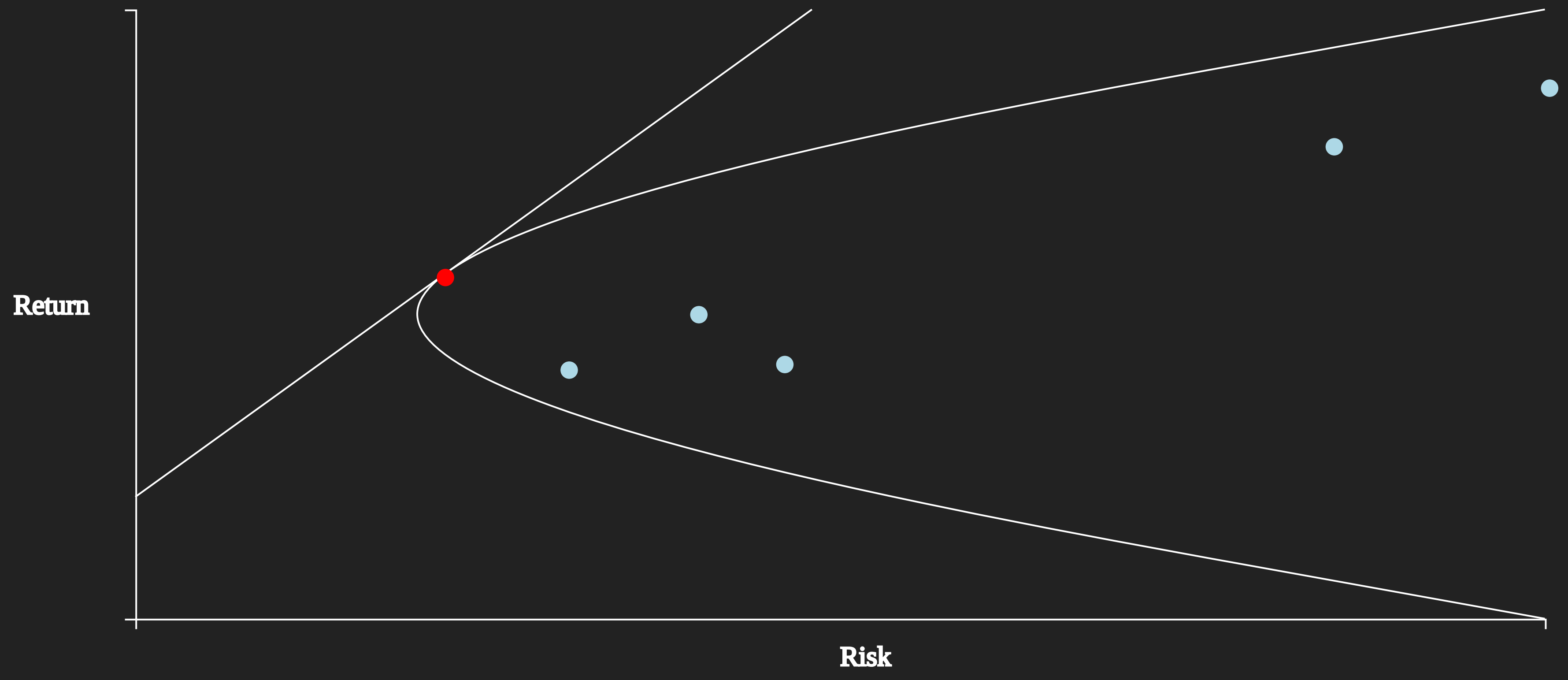
HISTORY OF PORTFOLIO SELECTION

- **1952, Markowitz:** Efficient frontier for one-off investments
- **1956, Kelly:** Optimize expected terminal wealth for repeated games
- **1991, Cover:** Kelly without statistical assumptions

MODERN PORTFOLIO THEORY

Portfolio should be risk/return Pareto efficient

Does not use intermediate info



ONLINE PORTFOLIO SELECTION

Investing is a repeated game

Kelly: if distribution known, calculate terminal wealth optimizer

Cover: no assumptions, compare with a good benchmark

THE MAIN IDEA

No statistical assumptions

Define a 'best strategy in hindsight' a la Markowitz

Minimize maximum distance to best strategy

Repeat for different risk preferences to build efficient frontier

Why no statistical assumptions?

Assets get (de)listed

Trump starts a tariff war

Why that arbitrary benchmark?

NEXT STEPS

Find efficient frontier

Include transaction costs

Optimal rebalancing frequency

Theorems, proofs

Slides available at

sebastiaanvermeulen.nl/slides/online-portfolios

Slides created with reveal.js.