Georgia Institute of Technology


# Computational Investing, Part I

## *073: Capital Assets Pricing Model*

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*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.*

School of Interactive Computing

# CAPM: Implications

- Expected excess returns are proportional to beta.
- Beta of a portfolio = weighted sum of betas of components.

# Portfolio Beta Example

# CAPM Market Risk: Example

# CAPM Market Risk: Example

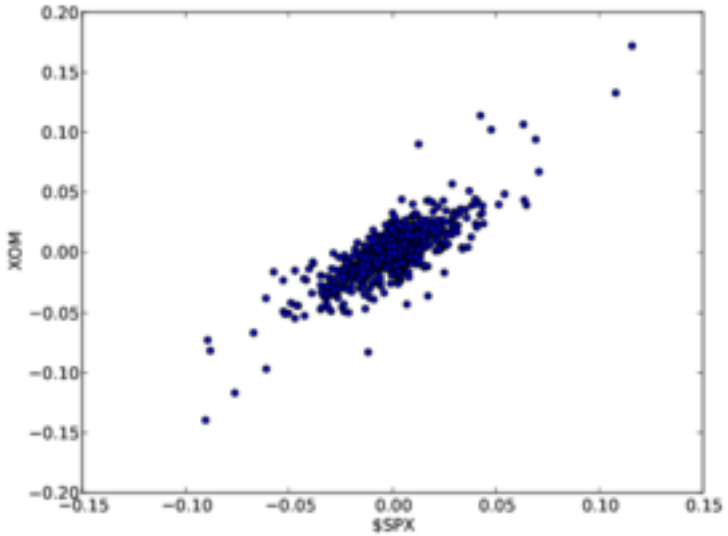
# CAPM Market Risk: Long & Short

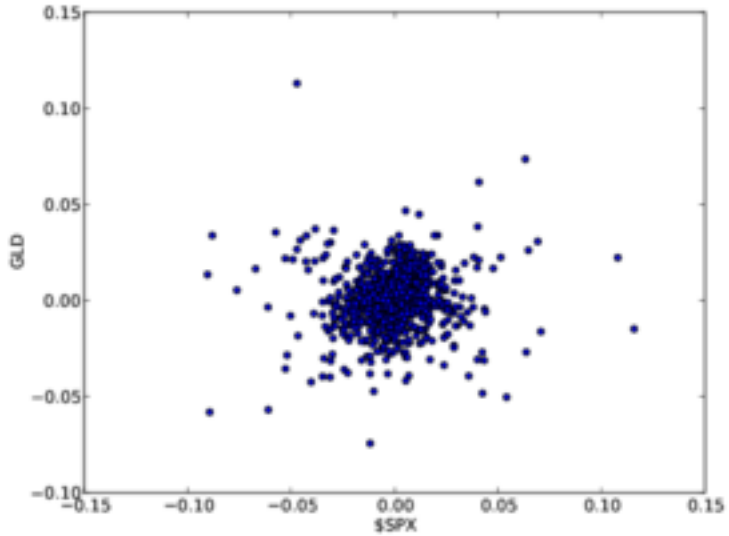
# Summary:

- Understand assumptions of the CAPM.
- Understand implications of the CAPM.

- Reading: Grinold & Kahn,
- chapter 2

# Beta & Correlation with Market



# CAPM: Expected Residual = 0

- CAPM:
  - $r_i(t) = beta_i * r_m(t) + alpha_i$
  - $r_i(t) = beta_i * r_m(t) + random$
- Active Portfolio Management View
  - $r_i(t) = beta_i * r_m(t) + alpha_i$