

Cost of Equity Capital

MGMT 675: AI-Assisted Financial Analysis



- Overview of cost of equity capital
- Data sources
 - FRED
 - Ken French's data library
 - Yahoo Finance
- Regressions

CAPM

Cost of Equity Capital

- According to the CAPM, the cost of equity capital is

$$\text{risk-free rate} + \text{beta} \times \text{market risk premium}$$

- What to use for the risk-free rate?
- How to estimate the market risk premium?
- How to estimate beta?

Data Sources

- FRED = Federal Reserve Economic Data
- <https://fred.stlouisfed.org/>
- Easy way to get data is with pandas datareader
- Ask Julius to get the current 10-year U.S. Treasury yield from FRED
- Ask Julius to get the current 3-month U.S. Treasury yield from FRED

- [French's website](#) at Dartmouth (actually DFA)
- Easy way to get data is with pandas datareader
- Ask Julius to list the data sets available
- Ask Julius to get monthly Mkt-RF and RF beginning in 1926

- <https://finance.yahoo.com/>
- Yahoo computes split-adjusted prices (like everyone does) and also split and dividend adjusted prices (called adjusted close)
- Percent change in adjusted close is capital gain + dividend yield
- Easy way to get data is with yfinance

- yfinance recently started auto adjusting - when you ask for closing prices, you get the adjusted close by default
- Ask Julius to use yfinance 0.2.54 (most recent version)
- Ask Julius for closing prices (you'll get the adjusted close)
- Compute percent changes to get returns
- Example: Ask Julius to use yfinance 0.2.54 to get monthly closing prices for AAPL and to compute returns as percent changes

Merging data

- Date formats
 - Ask Julius what the date format is for the Mkt-RF and RF data
 - Ask Julius what the date format is for the AAPL returns
 - Ask Julius how to merge the two data sets
 - Tell Julius to merge them as it recommends
- Decimal or percentage? Ask Julius to convert the AAPL return to percentage or to convert Mkt-RF and RF to decimal.

Regression

CAPM regression

- We want to regress the excess stock return on the excess market return
- Conventional to use most recent 60 months of data
- Ask Julius to compute the AAPL return minus RF
- Ask Julius to regress the excess AAPL return on Mkt-RF using the most recent 60 months for which both are available
- Ask Julius to show a scatter plot with the regression line

- Create a Julius workflow in which the user inputs a ticker and specifies whether she wants to use the 3-month Treasury or 10-year Treasury as the risk-free rate.
- The workflow should return the cost of equity capital and a scatter plot of the regression.