RSM 3034 – Empirical Asset Pricing

Homework due before class on January 22, 2026

1. Construct the monthly HML factor of Fama-French

- Use any programming language you want to replicate the HML factor. Do not use any data from Ken French's website for replication (e.g., don't use his breakpoints) but instead start from scratch and replicate the factor with CRSP and Compustat data.
- Here are some tips:
    - See sample code on WRDS for merging CRSP and Compustat.
    - Be careful about historical rather than header codes (e.g., for share classes and exchange codes).
    - Adjust for delisting return: you'll have to look at the literature on how to do it – start with Shumway (1997) and Shumway and Warther (1999).
    - Davis, Fama, and French (2000) give a very clear description of timing and variable measurement.
    - If you look at older papers like the ones above, they reference Compustat variables by data numbers – there's a 'translation' file on WRDS that converts data numbers to variable names if you need it.

2. Construct the monthly HML^{INT} factor that incorporates intangibles

- The Fama-French definition of book equity largely misses intangible assets, and recent underperformance of the value strategy has sometimes been attributed to this mis-measurement. One recent paper that proposes a straightforward way to incorporate intangibles into the construction of a value factor is Eisfeldt, Kim, and Papanikolaou (2022).
- A relevant paper to read on intangible capital is Eisfeldt and Papanikolaou (2013, JF).

3. Compare your HML with the version French's website and your HML^{INT} with the version on Kim's website. For each of the two factors you replicate, compute the following number:

$$50 \times \text{Corr}(R_{t,\text{Yours}}, R_{t,\text{Orig}}) + 25 \times (1 - |\mu_{\text{Yours}} - \mu_{\text{Orig}}|) + 25 \times (1 - |\sigma_{\text{Yours}} - \sigma_{\text{Orig}}|),$$

where Orig is the original (FF or EKP) factor you are replicating, and Yours is your version of it, correlation is in decimals, and means and standard deviations of returns are in percent per month. Your grade will be the average of these two numbers you compute.

- Share your code via Git repo, keeping it reasonably easy to follow.
- Your code should produce two images in which you plot the time series of differences in monthly HML returns that you obtain and monthly HML returns from FF or EKP.