Homework 1: Portfolio and fund returns
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Download from Canvas the spreadsheet "HW 1 data.xlsx".
The first tab has the data for part 1 of this homework, the remaining tabs are for part 2.

Part 1: Returns on simple stock portfolios and indexes
The first tab of the spreadsheet ("HD, TGT, COST") reports stock prices and counts of shares outstanding for three companies (Home Depot, Target, Costco) for 2021, 2022, and 2023.

1. You invest $1m across these three stocks at the start of 2022, using an **equal-weighted** strategy. You rebalance once at the start of 2023 to bring your portfolio back in line with the strategy (and reinvest any dividends received), then sell your holdings at the end of 2023. What was your realized return over the two years? What was your turnover ratio when you rebalanced?

2. Redo the previous question assuming instead that you follow a **value-weighted** strategy.

3. Calculate a **value-weighted index** of the three stocks for the years that you invested, following the methodology of the S&P 500 as we discussed in class. Set the index initially to 1000.

Part 2: Fund returns and performance measures
The remaining tabs of the spreadsheet report monthly NAVs and distributions for five different mutual funds from 2004-2023, along with monthly risk-free rates of return.

Using this data,

4. For each fund, report the following statistics: Arithmetic average return, cumulative value of $1 invested initially, volatility, Sharpe ratio. For each statistic, identify the fund that appears best.

5. Consider a strategy of allocating your money equally between FBDIX and FKUTX, and rebalancing every month so that you always have equal dollar allocation to the two funds. Calculate the arithmetic average return on this strategy, and the cumulative value of $1 invested. On each of these two statistics, how would this strategy rank against the five individual funds? *Note: You can answer this by knowing just the monthly return on the strategy, which is a simple calculation. You **do not** need to calculate actual holdings or rebalancing activity over time as you did in #1 - #3 above. If you find yourself doing this, step back and look for a simpler way!*

Reminder about the timing of financial data:
- In part 1, the dividends reported for each year were paid *during* that year. The share prices, and number of shares outstanding, are measured at the *end* of that year.
- Likewise, in part 2, the distributions reported for each mutual fund and month were paid *during* the month listed, while the NAV values are reported at the *end* of the month listed.