Problem 9.2
Data Description

The file "`Problem9.2_data.xlsx`" (also provided in csv format) contains the data for Problem 9.2. The dataset, a subset of the accompanying dataset for Campbell and Vuolteenaho (CV, *The American Economic Review*, December 2004) consists of 14 quarterly return series running from the first quarter of 1929 to the fourth quarter of 2001.

The first four series (columns 2-5) correspond to the estimates of the four terms in the loglinear return decomposition (9.39) for the US market return from the VAR estimation performed by CV:

$$r_{m,t+1} - r_{f,t+1} - \mathrm{E}_t\left[r_{m,t+1} - r_{f,t+1}\right] \approx (-N_{DR,t+1}) + N_{CF,t+1}$$

Column 2 (`rm-rf`) is the historical series for the excess log market return, $r_{m,t+1} - r_{f,t+1}$, realized at the end of the corresponding quarter. It is constructed as the difference between the log return on the CRSP value-weighted stock index and the log riskfree rate, the latter constructed by CRSP from Treasury bills with an approximate maturity of three months. Column 3 (`E[rm-rf]`) is the VAR estimate of the conditional expected excess log return to the market (assumed to be known at the beginning of the quarter). Columns 4 (`-Ndr`) and 5 (`Ncf`) are the VAR estimates of the discount-rate news and cash-flow news terms, $-N_{DR,t+1}$ and $N_{CF,t+1}$, respectively. The estimates satisfy the return decomposition exactly by construction. Note that only the two news series are directly needed for the GMM analysis of Problem 9.2.

Column 6 (`Rf`) is the series for the net simple real return on a Treasury bill with an approximate maturity of three months, constructed as above and adjusted for realized inflation (CPI growth).[1]

Columns 7-15 are net simple return series for 9 portfolios, a subset of the 25 Fama-French portfolios formed on size and book-to-market, also adjusted for inflation (realized CPI growth). The 25 Fama-French portfolios are the intersections of 5 portfolios of stocks sorted by size (market equity, ME) and 5 portfolios of stocks sorted by the ratio of book equity to market equity (BE/ME). The portfolios are constructed yearly at the end of each June. Year-t portfolios include all NYSE, AMEX, and NASDAQ stocks with available market equity data for the December of year $t-1$ and June of year t, and (positive) book equity data for year $t-1$. The size and BE/ME breakpoints are the respective NYSE quintiles. Portfolio `FFSmBMn`, where $m, n = 1, \ldots, 5$, is the portfolio of stocks with market equity (at the end of June of year t) in the mth quintile of NYSE market equity and book-to-market ratio (book equity for the last fiscal year end in $t-1$ divided by market equity for December of $t-1$) in the nth quintile of the NYSE book-to-market ratio. The portfolio returns are value-weighted.

[1] Because the rate of inflation is stochastic, this return is best thought of as the inflation-adjusted realized return to an asset that is risky in real terms rather than as the "true" real riskfree rate.