Global Factor Returns

Data Description

Stock returns and accounting data are from the union of the CRSP tape and the XpressFeed Global database. The domestic data include all available common stocks on the merged CRSP/XpressFeed data. The international data include all available common stocks on the XpressFeed Global database for 24 developed markets. Individual issues are assigned to the corresponding market based on the location of the primary exchange. For companies traded in multiple markets we use the primary trading vehicle identified by XpressFeed.

Variables Used to Form Portfolios

Size (SMB): total market value of equity (ME).

*Value (HML)***:** book equity (BE) divided by current total market value of equity (ME). To obtain shareholders' equity we use we use Stockholders' Equity (SEQ) but if not available, we use the sum of Common Equity (CEQ) and Preferred Stocks (PSTK). If both SEQ and CEQ are unavailable, we proxy shareholders' equity by Total Assets (AT) minus the sum of Total Liability (LT) and Minority Interest (MIB). To obtain book equity (BE), we subtract from shareholders' equity the preferred stock value (PSTKRV, PSTKL or PSTK depending on availability). We assume that accounting variables are known with a minimum 6-month gap and align book price of the firm at the end of the firm's fiscal year ending anywhere in calendar year $t-1$ to June of calendar year t.

Momentum (UMD): return over the prior 12 month, skipping the most recent month.

Short Term Reversal (STREV): minus the return over the prior month, skipping the most recent trading day.

Portfolios

The portfolio construction follows Fama and French (1992, 1993 and 1996) and Asness and Frazzini (2013). We form one set of portfolios in each country and compute global factor portfolios by weighting each country's portfolio by the country's total (lagged) market

capitalization. The market factor MKT is the value-weighted return on all available stocks minus the one-month Treasury bill rate. The size, value, momentum and short term reversal factors are constructed using six value-weighted portfolios formed on size and book-to-market, 1-year return and 1-month return. At the end of each calendar month, stocks are assigned to two size-sorted portfolios based on their market capitalization. For U.S. securities, the size breakpoint is the median NYSE market equity. For International securities the size breakpoint is the 80th percentile by country. We use conditional sorts, first sorting on size, then on the second variable and rebalance portfolio monthly to maintain value weights. Note that this approach is slightly different from Fama and French (1992, 1993 and 1996) who use independent sorts. We prefer conditional sort to ensure a balanced number of securities in each portfolio.

The size factor SMB is the average return on the 3 small portfolios minus the average return on the 3 big portfolios:

$$\begin{aligned} \text{SMB} = \quad & 1/3\ (\text{Small Value} + \text{Small Neutral} + \text{Small Growth}) \\ & - 1/3\ (\text{Big Value} + \text{Big Neutral} + \text{Big Growth}) \end{aligned}$$

Portfolios are value-weighted. The size and book-to-market breakpoints are refreshed every June of each calendar year, and the portfolios are rebalanced every calendar month to maintain value weights.

The value factor HML^{devil} follows Asness and Frazzini (2013). HML^{devil} is the average return on the two value portfolios minus the average return on the two growth portfolios:

$$HML^{devil} = 1/2\ (\text{Small Value} + \text{Big Value}) - 1/2\ (\text{Small Growth} + \text{Big Growth})$$

The superscript "*devil*" indicates that to compute book to market ratios we scale book equity (ME) by the *current* total market value of equity (ME) at the end of each month following Asness and Frazzini (2013). Portfolios are value-weighted, refreshed calendar month and rebalanced every calendar month to maintain value weights.

The momentum factor UMD is the average return on the two high return portfolios minus the average return on the two low return portfolios:

$$UMD = 1/2\ (Small\ High + Big\ High) - 1/2(Small\ Low + Big\ Low)$$

The short term reversal factor STREV is the average return on the two low return portfolios minus the average return on the two high return portfolios:

$$STREV = 1/2\ (Small\ Low + Big\ Low) - 1/2(Small\ High + Big\ High)$$

All portfolio returns are in USD and do not include any currency hedging. Excess returns are above the U.S. Treasury bill rate.

References

Asness, Cliff and A. Frazzini (2013), The Devil in HML's Detail, *Journal of Portfolio* Management, 39, 49-68.

Fama, E., French, K., (1992). The cross section of expected stock returns. *Journal of Finance*, 47, 427–465.

Fama, Eugene F. and Kenneth R. French (1993), Common Risk Factors in the Returns on Stocks and Bonds, *The Journal of Financial Economics*, 33, 3-56.

Fama, E., French, K., (1996). Multifactor explanations of asset pricing anomalies. *Journal of Finance*, 51, 55–84.