Empirical Asset Pricing - Final Exam

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1 Fama-MacBeth

I follow Cochrane (2005) as best as possible to calculated t-statistics:

- FM t-statistics are calculated following page 245 onwards. I use the βs from the first stage and run a cross-sectional regression for each point in time seperately. The resulting λs naturally aggree with the λs from the second step. The time-covariance of the resultin λs give an estimate of the standard deviation.
- Shanken t-statistics are calculated using formulas from page 240. The necessary estimates for Σ and Σ_f are obtained from the first step regression.

$$\mathbb{E}(R^e_{j,}) = \lambda_0 + \boldsymbol{\lambda}'_H \boldsymbol{\beta}_H + \epsilon_j$$

Estimates for Factor Risk Prices λ_H, $H = 8$

Constant	$\frac{KS_{t+H}}{KS_t}$	$R^e_{m,t}$	SMB_t	HML_t	$\bar{R}^2$	$\frac{RMSE}{RMSR}$	BIC
Panel A: Size/BM							
1.551	0.668				0.804	0.123	−283.296
(2.198)	(4.452)						
[1.356]	[1.781]						
1.442		0.180	0.710	1.405	0.753	0.138	−277.487
(1.814)		(0.195)	(1.911)	(3.011)			
[0.845]		[0.090]	[0.771]	[1.460]			
3.649	0.493	−3.049	1.215	−0.191	0.864	0.103	−292.413
(3.829)	(3.914)	(−2.028)	(1.861)	(−0.310)			
[1.418]	[1.694]	[−0.794]	[0.625]	[−0.133]			
Panel B: All Equities							
Constant	$\frac{KS_{t+H}}{KS_t}$	$R^e_{m,t}$	SMB_t	HML_t	$\bar{R}^2$	$\frac{RMSE}{RMSR}$	BIC
1.645	0.568				0.735	0.135	−966.527
(2.513)	(3.855)						
[5.116]	[5.064]						
1.562		0.141	0.670	1.435	0.718	0.140	−961.184
(2.672)		(0.200)	(1.780)	(3.238)			
[4.609]		[0.313]	[2.476]	[5.082]			
2.921	0.382	−1.850	0.850	0.143	0.786	0.121	−984.718
(3.246)	(3.408)	(−1.302)	(1.368)	(0.223)			
[4.539]	[4.526]	[−1.833]	[1.541]	[0.342]			

The table shows an unexpected pattern: The Shanken t-statistics are not always lower than the FM t-statistics. But then again, I am not comparing uncorrected vs. corrected t-statistics, but two different estimation methods.

Compared to table 4 in Lettau et al. (2018) I have similar point estimates for the KS regression. In the FF regression, the intercept and market factor estimates are substantially different. I attribute this to different methods to aggregate the explanatory variables to long horizon, the already sparse description file does not comment on how it should be done. The horse race regression has similar results for all equities, but not so much for the size-value test assets.

2 Good Beta/Bad Beta

Campbell and Vuolteenaho (2003) split market beta into cash flow beta and discount rate beta. Excess return of a test asset i is then $\mathbb{E}[R_i - R_f] = \gamma\sigma_M^2\beta_{i,CF_M} + \sigma_M^2\beta_{i,DR_M}$. The bad cash flow beta is multiplied by the relative risk aversion, and hence has a higher price of risk. They show that value and small stocks load more on the cash flow factor.

This decomposition allows the ICAPM to better attribute returns to two different factors with two different risk prices, much like a regression fits better with an additional regressor. On the other hand, the CAPM can only use one factor to explain cross-sectional returns.

They point out that compared to Campbell (1996) (not Campbell (1999)) they use a "richer forecasting model that includes the value spread as well as the aggregate price-earnings ratio", or more precisely the small-stock value spread. Their table 3 shows that different pattern of shock correlations: While the value shock correlates very negatively with the cash flow shock, the price-earnings shock correlates very negatively with the discount rate shock. Without those two factors Campbell (1996) cannot pick up as much variation, hence their results are weaker.