

Discussion of:

**”Duality in Mean-Variance Frontiers with
Conditioning Information”**

by

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Summary

- ▶ The paper studies duality relation between returns and stochastic discount factors (SDFs) with conditioning information.
- ▶ The authors show that the unconditional efficient return frontier (URF) in Hansen and Richard (1987) and the optimal HJ bounds (USF) in Gallant, Hansen and Tauchen (1990), are not dual objects.
- ▶ They characterize the corresponding respective dual objects to URF (ESF) and USF (ERF).
- ▶ Provide two empirical applications:
 - ▶ Verify if including conditioning information changes portfolio and/or SDF unconditional frontiers.
 - ▶ Test admissibility of the Fama and French Model with respect to a frontier that uses conditioning information.

The Role of Conditioning Information and Mean-Variance Duality

- ▶ i) Portfolio: Conditioning may increase the number of strategies that a portfolio manager can generate.
- ▶ ii) Asset Pricing: Researchers adopt conditioning information to try to generate sharper unconditional variance bounds.
- ▶ The authors show that i) is not dual of ii) (and vice-versa).
- ▶ Researchers have two options to deal with conditioning information: Either to estimate conditional densities or to approximate conditioning information by managed portfolios (usually preferred to avoid misspecification).
- ▶ Implications for the use of managed portfolios: If adopted in portfolio problems, they should have constant cost, but if adopted in SDF problems they should be taken unrestricted.

The Importance of Predictability for Portfolio Choice and Asset Pricing

- ▶ The authors test if conditioning on the Dividend-Price Ratio (DP), and Default Spread (DS) mean-variance portfolio and SDF frontiers experience any changes.
- ▶ They find that those variables are not important for portfolio choice but they matter for asset pricing restrictions.
- ▶ If the goal is to test the role of **predictability** as a particular case of **conditioning information...**
- ▶ adopting conditioning variables that present **stronger predictability** of equity returns would be desirable.
- ▶ In fact, Goyal and Welch (RFS, 2008) find that the predictability of DP and DS is poor, specially out-of-sample.

- ▶ I suggest the Fourth-quarter consumption growth rate (FQCG, change in real consumption from third to fourth quarter).
- ▶ It is a much stronger predictor of equity premium.
- ▶ Jagannathan and Wang (JF, 2007) show that based on the Fourth-quarter consumption, the CCAPM captures US cross-sectional expected returns.
- ▶ Most importantly, for a long series of quarterly data from 1947 to 2009, Moller and Rangvid (MR,2011) show that it has an out-of-sample R^2 predictability of 10%, as opposed to negative performances of DP and DS.
- ▶ In addition, MR (2011) show that the combination of the FQCG with the consumption-wealth (cay) ratio of Lettau and Ludvigson (2001), increases the o-o-s R^2 to 20%.

Second Empirical Application: Testing the Fama and French Model

- ▶ Given that the unconditional SDF Frontier (USF) obtained using conditioning variables (DP, DS) differs from the unconditional traditional HJ frontier...
- ▶ ...the authors test if the FF model is admissible under the USF frontier, and identify that it is admissible.
- ▶ To make stronger case about differences across frontiers w.r.t the relevance of conditioning information, it would be interesting to have the benchmark model rejected.
- ▶ Could either try to better explore conditioning variables (higher order polynomial combinations), or include lagged returns as conditioning variables, and redo the tests for portfolios and SDF frontiers.

Sensitivity to the Functional Form of Managed Portfolios

- ▶ The authors (PS) adopt linear and quadratic functions of conditioning variables when generating managed returns.
- ▶ Quadratic terms appear to be important to distinguish between HJ variance frontier and USF.
- ▶ Ferson and Siegel (FS, 2009) suggest a procedure that adopts portfolio weights that can be any bounded and integr. function of cond. variables z that restricts portfolio weights to sum to 1 a.e. (forcing them to be returns).
- ▶ PS showed that restricting managed portfolios to have fixed prices makes the SDF frontier less sharp (ESF is below USF).
- ▶ A natural experiment to pursue would be to compare the FS (2009) approach to the unrestricted managed portfolios of PS (2011). Which would generate sharper frontiers?