Score-driven models

References

Andrew Harvey

May 2017

1 Main references

Harvey, A. C. (2013) Dynamic Models for Volatility and Heavy Tails. Cambridge University Press.

Creal, D., Koopman, S.J., and A. Lucas (2013). Generalized autoregressive score models with applications. *Journal of Applied Econometrics*, **28**, 777-95.

Creal, D., Koopman, S.J. and A. Lucas (2011). A Dynamic Multivariate Heavy-Tailed Model for Time-Varying Volatilities and Correlations, *Journal of Business and Economic Statistics*, 29, 552-63.

2 Websites

Links to DCS/GAS papers can be found on the websites econ.cam.ac.uk/DCS and gasmodel.com

3 Books

Durbin, J. and S.J. Koopman (2012). *Time Series Analysis by State Space Methods*, 2nd ed., Oxford University Press, Oxford.

Embrechts, P., Kluppelberg, C. and T. Mikosch (1997). Modelling Extremal Events. Berlin: Springer Verlag.

Franke, J., Hardle, W.K., Hafner, C.M., Statistics of Financial Markets, Third Edition, Springer, 2011.

Harvey, A. C., *Time Series Models* (TSM), 2nd Edition, Harvester Wheat-sheaf, 1993.

Harvey, A. C. (1989) Forecasting, Structural Time Series Models and the Kalman Filter (FSK), Cambridge University Press.

Hautsch, N. (2012) Econometrics of Financial High-Frequency Data, Berlin: Springer Verlag

Koopman, S. J. et al., STAMP 8.2 Timberlake Consultants, 2008.

Maronna, R., Martin, D. and Yohai, V. (2006). Robust Statistics: Theory and Methods. John Wiley & Sons Ltd.

McNeil, A.J., Frey, R. and P. Embrechts. Quantitative Risk Management. Princeton Series in Finance, 2005.

Mills, T. and R.N. Markellos, *The Econometric Modelling of Financial Time Series*, 3rd ed. Cambridge University Press, 2008

Shephard, N. Stochastic Volatility. OUP, 2005

Taylor, S. Asset Price Dynamics, Volatility, and Prediction. Princeton University Press, 2005.

Taylor, S. (2008) Modelling Financial Time Series (2nd ed). World Scientific.

Tsay, R, (2010) Analysis of Financial Time Series, 3rd ed. Wiley.

4 Articles

Andersen, T.G., Bollerslev, T., Christoffersen, P.F. and F.X. Diebold. Volatility and correlation forecasting. *Handbook of Economic Forecasting*, edited by G Elliot, C Granger and A Timmermann, 777-878. North Holland, 2006.

Bazzi, Marco, Francisco Blasques, Siem Jan Koopman and Andre Lucas (in press): Time Varying Transition Probabilities for Markov Regime Switching Model, Journal of Time Series Analysis

Billé, Anna Gloria, and Leopoldo Catania (in press): Dynamic Spatial Autoregressive Models with Autoregressive and Heteroskedastic Disturbances", Journal of Applied Econometrics

Blasques, Francisco, Siem Jan Koopman, Andre Lucas and Julia Schaumburg (2016), Spillover Dynamics for Systemic Risk Measurement using Spatial Financial Time Series Models, *Journal of Econometrics*, 195, 211-223.

Blazsek, S. and L.A. Monteros (2017) Dynamic conditional score models of degrees of freedom: filtering with score-driven heavy tails. *Applied Economics* (to appear).

Bollerslev, T., Engle, R.F. and Nelson, D.B. (1994). ARCH models, in *Handbook of Econometrics, Volume* 4, 2959-3038. Engle, R.F. and McFadden, D.L. (eds). Amsterdam: North-Holland.

Caivano, M. and A.C. Harvey (2014). Time series models with an EGB2 conditional distribution. *Journal of Time Series Analysis*, 34, 558-71.

Caivano, Michele, Andrew Harvey and Alessandra Luati (2016): Robust time series models with trend and seasonal components, *SERIEs*, 7, 99-120.

Calvori, Francesco, Drew Creal, Siem Jan Koopman and Andre Lucas (in press): Testing for Parameter Instability in Competing Modeling Frameworks, *Journal of Financial Econometrics*.

De Lira Salvatierra, I. and A. J. Patton (2015). Dynamic Copula Models and High Frequency Data, *Journal of Empirical Finance*, 30, 120-135.

Delle Monache, Davide and Ivan Petrella (2017): Adaptive models and heavy tails with an application to inflation forecasting, *International Journal of Forecasting* 33, 482-501

De Rossi, G. and A.C. Harvey (2009) Quantiles, expectiles and splines. Journal of Econometrics, 152, 179-85.

Engle, R.F., Lilien, D. M. and R. P. Robins (1987) Estimating Time Varying Risk Premia in the Term Structure: The Arch-M Model. *Econometrica*, 55, 391-407.

Harvey, A. C. and A. Luati (2014). Filtering with Heavy Tails, *Journal* of the American Statistical Association, 109, 1112-1122.

Harvey, A. C. and V. Oryshchenko (2011). Kernel density estimation for time series data. *International Journal of Forecasting* **28**. 3-14.

Harvey, A. C. and Sucarrat, G. (2014). EGARCH Models with Fat Tails, Skewness and Leverage. *Computational Statistics and Data Analysis* **26**, 320-338.

Harvey, A.C. and S. Thiele (2016) Testing against changing correlation. Journal of Empirical Finance, 38, 575-89.

Harvey, A.C. and R-J. Lange (2017). Volatility Modelling with a Generalized t-distribution, Journal of Time Series Analysis (forthcoming).

Harvey, A.C. and R-J. Lange (2017). Modeling the Interactions between Volatility and Returns. CWPE 1518, July, 2015.

Harvey, A.C. and R. Ito (2017). Modeling Time Series with Zero Observations. Nuffield College Economics Working Paper 2017-W01, Oxford Univer-

sity, February, 2017. https://www.nuffield.ox.ac.uk/economics/papers/2017/CensorAus5d_Submit Jensen, S. T. and Rahbek, A. (2004). Asymptotic inference for nonstationary GARCH. *Econometric Theory* 20, 1203-26

Janus, Pawel, Siem Jan Koopman and Andre Lucas (2014). Long Memory Dynamics for Multivariate Dependence under Heavy Tails, *Journal of Empirical Finance*, 29, 187-206.

Koopman, S. J. Harvey, A. C., Doornik, J. A. and N. Shephard (2009). STAMP 8.2 Structural Time Series Analysis Modeller and Predictor. London: Timberlake Consultants Ltd.

Lucas, Andre, Bernd Schwaab and Xin Zhang (in press): "Measuring Credit Risk in a Large Banking System: Econometric Modeling and Empirics", Journal of Applied Econometrics, 32: 171–191 (2017)

Dong Hwan Oh & Andrew J. Patton (2016): Time-Varying Systemic Risk: Evidence from a Dynamic Copula Model of CDS Spreads, Journal of Business & Economic Statistics, DOI: 10.1080/07350015.2016.1177535

Nelson, D. B. (1991). Conditional heteroskedasticity in asset returns: a new approach. *Econometrica* 59, 347-370.

Oh, D. H. and A. Patton. (in press) Time-varying systemic risk: evidence from a dynamic copula model of CDS spreads, *Journal of Business and Economic Statistics*

Opschoor, Anne, Pawel Janus, Andre Lucas, and Dick J. van Dijk (in press): New HEAVY Models for Fat-Tailed Realized Covariances and Returns, Journal of Business and Economic Statistics.

Patton, A. J. (2014). Copula Methods for Forecasting Multivariate Time Series. *Handbook of Economic Forecasting*, vol 2

Theodossiou, P. and Savva, C.S. (2016), Skewness and the relation between risk and return, *Management Science*, **62**, 1598 – 1609.

Zhu, D. and Galbraith, J.W. (2010). A generalized asymmetric Student-t distribution with application to financial econometrics. *Journal of Econometrics* **157**, 297–305.