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A multivariate conditional autoregressive range model. (English) Zbl 1255.62244
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Summary: We propose a multivariate extension of the conditional autoregressive range (CARR) model recently proposed in the literature. The CARR model provides an interesting alternative to the traditional volatility models (e.g., GARCH and stochastic volatility). We derive conditions for the existence of the first moment, stationarity, geometric ergodicity and beta-mixing property with exponential decay for the multivariate CARR.

MSC:

62M10 Time series, auto-correlation, regression, etc. in statistics (GARCH)
62P05 Applications of statistics to actuarial sciences and financial mathematics

Cited in 4 Documents

Keywords:

conditional correlation; mixing property; range; stationarity

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References:

- [1] Andersen, T.G.; Bollerslev, T., Answering the skeptics: yes, standard volatility models do provide accurate forecasts, International economic review, 39, 885-905, (1998)
- [2] Andersen, T.G.; Bollerslev, T.; Diebold, F.X.; Labys, P., Modeling and forecasting realized volatility, Econometrica, 71, 529-626, (2003) · [Zbl 1142.91712](#)
- [3] Bandorff-Nielsen, O.E.; Shephard, N., Econometric analysis of realised volatility and its use in estimating stochastic volatility models, Journal of the royal statistical society. series B, 64, 253-280, (2002) · [Zbl 1059.62107](#)
- [4] Bollerslev, T., Generalized autoregressive conditional heteroskedasticity, Journal of econometrics, 31, 307-327, (1986) · [Zbl 0616.62119](#)
- [5] Bollerslev, T., Modelling the coherence in short-run nominal exchange rates: a multivariate generalized ARCH approach, Review of economics and statistics, 72, 498-505, (1990)
- [6] Bollerslev, T.; Engle, R.F.; Woodridge, J.M., A capital asset pricing model with time varying covariances, Journal of political economy, 96, 116-131, (1988)
- [7] Carrasco, M.; Chen, X., Mixing and moment properties of various GARCH and stochastic volatility models, Econometric theory, 18, 17-39, (2002) · [Zbl 1181.62125](#)
- [8] Chen, M.; An, H.Z., A note on the stationary and the existence of moments of the GARCH model, Statistica sinica, 8, 505-510, (1998) · [Zbl 0896.62087](#)
- [9] Chou, R.Y., 2003. Forecasting financial volatilities with extreme values: the conditional autoregressive range (CARR) model. Unpublished manuscript, Academia Sinica
- [10] Christoffersen, P.F., Elements of financial risk management, (2002), Academic Press San Diego · [Zbl 1250.91002](#)
- [11] Engle, R.F., Autoregressive conditional heteroskedasticity with estimates of the variance of united kingdom inflation, Econometrica, 50, 987-1008, (1982) · [Zbl 0491.62099](#)
- [12] Engle, R.F., Dynamic conditional correlation: a simple class of multivariate GARCH models, Journal of business & economic statistics, 20, 339-350, (2002)
- [13] Engle, R.F.; Kroner, K.F., Multivariate simultaneous generalized ARCH, Econometric theory, 11, 122-150, (1995)
- [14] Engle, R.F.; Russell, J., Autoregressive conditional duration: a new model for irregularly spaced transaction data, Econometrica, 66, 1127-1162, (1998) · [Zbl 1055.62571](#)
- [15] Engle, R.F.; Ng, V.K.; Rothschild, M., Asset pricing with a factor ARCH covariance structure: empirical estimates for treasury bills, Journal of econometrics, 45, 213-237, (1990)
- [16] Feller, W., The asymptotic distribution of the range of sums of independent random variables, Annals of mathematical statistics, 22, 427-432, (1951) · [Zbl 0043.34201](#)
- [17] Hentschel, L., All in the family: nesting symmetric and asymmetric GARCH models, Journal of financial economics, 39, 71-104, (1995)
- [18] Lo, A.W., Long memories in stock market prices, Econometrica, 59, 1279-1313, (1991) · [Zbl 0781.90023](#)

- [19] Parkinson, M., The extreme value method for estimating the variance of the rate of return, *Journal of business*, 53, 61-65, (1980)
- [20] Schwert, G.W., Stock volatility and the crash of '87, *Review of financial studies*, 3, 77-102, (1990)
- [21] Van der Weide, R., GO-GARCH: a multivariate generalized orthogonal GARCH model, *Journal of applied econometrics*, 17, 549-564, (2002)

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