

Accepted Manuscript

Composite Quantile Regression For GARCH Models Using High-Frequency Data

Meng Wang, Zhao Chen, Christina Dan Wang

PII: S2452-3062(16)30028-4
DOI: [10.1016/j.ecosta.2016.11.004](https://doi.org/10.1016/j.ecosta.2016.11.004)
Reference: ECOSTA 28



To appear in: *Econometrics and Statistics*

Received date: 16 April 2016
Revised date: 22 November 2016
Accepted date: 22 November 2016

Please cite this article as: Meng Wang, Zhao Chen, Christina Dan Wang, Composite Quantile Regression For GARCH Models Using High-Frequency Data, *Econometrics and Statistics* (2016), doi: [10.1016/j.ecosta.2016.11.004](https://doi.org/10.1016/j.ecosta.2016.11.004)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Composite Quantile Regression For GARCH Models Using High-Frequency Data

Meng Wang²

University of Science and Technology of China

Zhao Chen²

Pennsylvania State University

Christina Dan Wang*

Columbia University

Abstract

The composite quantile regression (CQR) method is newly proposed to estimate the generalized autoregressive conditional heteroskedasticity (GARCH) models, with the help of high-frequency data. High-frequency intraday log-return processes are embedded into the daily GARCH models to generate the corresponding volatility proxies. Based on proxies, the parameter estimation of GARCH model is derived through the composite quantile regression. The consistency and the asymptotic normality of the proposed estimator are obtained under mild conditions on the innovation processes. To examine the finite sample performance of our newly proposed method, simulation studies are conducted with comparison to several existing estimators of the GARCH model. From the simulation studies, it can be concluded that the proposed CQR estimator is robust and more efficient. An empirical analysis on high-frequency data is presented to illustrate the new methodology.

*Corresponding author: Christina Dan Wang is Assistant Professor, Department of Statistics, Columbia University, New York, NY 10027. Email: dw2674@columbia.edu.

¹Meng Wang is Ph.D. candidate, Department of Statistics and Finance, University of Science and Technology of China, Hefei, Anhui 230026, China, Email: wang262@mail.ustc.edu.cn.

²Zhao Chen is Research Associate, Department of Statistics, Pennsylvania State University, State College, PA 16802. Email: zuc4@psu.edu.

Download English Version:

<https://daneshyari.com/en/article/8919462>

Download Persian Version:

<https://daneshyari.com/article/8919462>

[Daneshyari.com](https://daneshyari.com)