

Cross-correlation measures for high-frequency data in an emerging market

Diane Wilcox, Tim Gebbie and Chanel Malherbe

Dept. Mathematics & Applied Mathematics, University of Cape Town, Private Bag, Rondebosch, 7700, South Africa

Corresponding author e-mail: *diane@maths.uct.ac.za*

We estimate cross-correlations in the returns of frequently traded stocks listed on the Johannesburg Stock Exchange (JSE) from trade-by trade data between 2001 and 2004. As with high-frequency data from developed markets, the data in this study is unevenly sampled. We compare two approaches to for estimating cross-correlations. In the first, the data is regularized by linear or previous-tick interpolation before usual statistics are applied. In the second, we apply the nonparametric Fourier analysis method introduced by Malliavin and Mancino in which cross-correlation estimates are reconstructed from the Fourier coefficients of the measured returns time-series.