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Alternative beta risk estimators in cases of extreme thin trading: Canadian evidence

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Abstract

In this paper, an alternative method of estimating the systematic risk for Canadian stocks is presented and empirically investigated. The method proposed is applied to a set of data impacted by censoring – the presence of zero returns, which occurs in extreme cases of thin trading. The approach used is the sample selectivity model, which is a two-step procedure: with a selectivity component and a regression component. In addition, this study compares the new beta estimate to the standard OLS beta and the Dimson Beta. The results indicate that the selectivity-corrected beta does correct the downward bias of the OLS estimates and possesses desirable statistical properties.

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Notes

[1] Several other beta estimation procedures have been proposed to combat thin trading problems: for example, Marsh (1979), Cohen et al. (1983a, b) and Fowler et al. (1989).

[2] To run the Dimson estimator with two leads and two lags of the market return with a selectivity correction requires a minimum of seven non-zero returns in the sample of 253 observations.

[3] Details are available from the authors upon request.

[4] See for example, Karpoff (1987), Gallant et al. (1992) and Hiemstra and Jones (1994).

[5] This second step regression has heteroscedastic errors and, thus, should be estimated by generalised least squares. However, an ordinary least squares estimation will still yield consistent and unbiased estimators.

[6] It should be noted however, that the censoring category between 80 and 90% shows a high market value (size) of C$ 60 million and a high trading volume of 124 000 shares. This can be explained due to the fact we have only one firm falling in this category (Viventia Biotech), with a degree of censoring of 82.2% (207 zero returns).

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