

An Application of Extreme Value Theory as a Risk Measurement Approach in Frontier Markets

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Abstract : In this paper, we consider the application of Extreme Value Theory as a risk measurement tool. The Value at Risk, for a set of indices, from six Stock Exchanges of Frontier markets is calculated using the Peaks over Threshold method and the performance of the model index-wise is evaluated using coverage tests and loss functions. Our results show that 'fat-tailedness' alone of the data is not enough to justify the use of EVT as a VaR approach. The structure of the returns dynamics is also a determining factor. This approach works fine in markets which have had extremes occurring in the past thus making the model capable of coping with extremes coming up (Colombo, Tunisia and Zagreb Stock Exchanges). On the other hand, we find that indices with lower past than present volatility fail to adequately deal with future extremes (Mauritius and Kazakhstan). We also conclude that using EVT alone produces quite static VaR figures not reflecting the actual dynamics of the data.

Keywords : extreme value theory, financial crisis 2008, value at risk, frontier markets

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