Abstract

This study employs Extreme Value Theory and several univariate methods to compare their Value-at-Risk and Expected Shortfall predictive performance. We conduct several out-of-sample backtesting procedures, such as unconditional coverage, independence and conditional coverage tests. The dataset includes five different stock markets, PX50 (Prague, Czech Republic), BIST100 (Istanbul, Turkey), ATHEX (Athens, Greece), PSI20 (Lisbon, Portugal) and IBEX35 (Madrid, Spain). These markets have different financial histories and data span over twenty years. We analyze the global financial crisis period separately to inspect the performance of these methods during the high volatility period. Our results support the most common findings that Extreme Value Theory is one of the most appropriate risk measurement tools. In addition, we find that GARCH family of methods, after accounting for asymmetry and fat tail phenomena, can be equally useful and sometimes even better than Extreme Value Theory based method in terms of risk estimation.

Keywords Extreme Value Theory, Value-at-Risk, Expected Shortfall, Out-of-Sample Backtesting

Author's e-mail ozturkdurmus@windowslive.com

Supervisor's e-mail ies.avdulaj@gmail.com