

EFFECT OF ECONOMIC CRISIS IN EFFICIENCY AND PREDICTABILITY OF GREEK AND GERMAN STOCK INDICES

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ABSTRACT

Economic crisis undoubtedly affected all economies in the euro zone, with their stock markets to be the primary sectors that suffered directly the consequences. In this work our scope is an investigation of the crisis effects to DAX and ASE stock indices, since Germany and Greece appear as the strongest and weakest links of the euro zone, respectively. At first, we perform an exploratory analysis of the indices along with a comparison of their statistical characteristics using daily logarithmic returns from 2000 to 2011. Next, we investigate the crisis consequences to each market through a repetitive application of the Andrew-Zivot test and a subsequent analysis of the disclosed structural breaks. Furthermore, our target is to study how crisis affects the efficiency of markets using the concept of long memory and variance ratio tests. Bootstrap p -values are calculated for the Lo-MacKinlay variance ratio test statistic, while the R/S method is employed to calculate Hurst exponents and reveal whether the crisis changed the efficiency of these two markets according to their Long Range Dependence behavior. To strengthen results, a rolling calculation of Hurst exponent in conjunction with bootstrap confidence intervals is used to depict the crisis effect on the efficiency of the two markets. Lastly, using the ARIMA scheme and Box-Jenkins methodology a study of predictability is performed to check afresh the efficiency of markets and decide whether predictions can outperform a constant zero assumption for the returns and whether crisis has altered the behavior of the indices.

Keywords: economic crisis, structural breaks, Hurst exponent, Lo-MacKinlay variance-ratio test, bootstrap confidence intervals

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