

# **Properties of a Diversified World Stock Index**

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## **Abstract**

This presentation compares various total return world stock indices based on daily data. Due to diversification these indices are noticeably similar. A diversification theorem identifies any diversified portfolio as a proxy for the growth optimal portfolio. A diversified world stock index is constructed that outperforms a number of other indices and is argued to be a good proxy for the growth optimal portfolio. This insight has applications in derivative pricing and investment management. Some empirical stylized facts concerning diversified world stock indices are reported when these indices are denominated in different currencies. The estimated distribution of log-returns for a range of indices, observed over long time periods, is obtained. The maximum likelihood ratio test is applied to the large class of generalized hyperbolic distributions. The Student t distribution turns out to be not rejectable as log-return distribution on an extremely high significance level for almost all currency denominations of the equi-value weighted world stock index constructed.

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