On the stock market globalization using Granger causality and mutual information to the G7

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Abstract
This paper analyzes the process of stock market globalization on the basis of two different approaches: Granger causality tests and mutual information tests. While the Granger causality tests are based on regression models and typically capture linearities in the data, mutual information is well suited for capturing global non-parametric relationships in the data without imposing any structure or restriction on the model. The data used in our empirical analysis were drawn from DataStream and comprise the natural logarithms of relative stock market indexes since 1973 for the G7 countries. The main results point to the conclusion that significant causal effects occur in this context and that mutual information and the global correlation coefficient actually provide more information on this process than Granger causality tests, but the direction of causality is difficult to distinguish in the former case. In both cases however there is evidence that stock markets are closely related in the long-run over the 36 years analyzed and, in this sense, one may say that they are globalized.

Keywords
Globalization, market integration, Granger causality, mutual information, global correlation

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