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# Nonlinear interdependencies or contagions phenomenons between the main European stock market indices? Evidence from a chaos-stochastic model

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## Abstract

The recent crises that shook the European's financial markets suggest interdependencies' phenomenon which may intensify in times of crisis. It is then more appropriate to use the term of contagion. This difference in terminology translates different realities that affect the choice of economic policies. To detect these phenomena on the European's financial markets, we use an original dynamic model which is a combination of the noisy Mackey-Glass model of Kyrtsov and Terraza (2002) with dynamical or constant Conditional Correlations GARCH errors. This model allows taking into account two types of transmission: a fundamentals-based contagion modelled by the Mackey-Glass equation and a shift contagion due to the behaviours of investors and modelled by the variance equation. We highlight that it exists a fundamentals-based contagion between French and German indices, from the French index to Greek index, from German and French indices to Italian index and from German index to Portuguese index. We identify a shift contagion between all indices, except Hellenic index.

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