

EPIDEMIOLOGICAL MODELLING AND OPTIMAL CONTROL OF A FINANCIAL-VIRUS SPREADING

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The global crisis of 2008 threatened the stability of the world economy, the negative consequences of it can be felt even today. This makes the subject an interesting field of research. The spread of an infection among a certain population is very similar to the contagion process in economy. This similarity allows us to consider the contagion in the global economy using the same mathematical models for the spread of a disease, which are used in epidemiology. Our research focuses on the dynamic behaviour of financial viruses that spread through countries' network interconnections. To avoid significant financial losses, an optimal control problem is formulated. The proposed approach describes well the reality of the world economy, the importance of countries' interconnectedness and recommendations are also made to minimize risks in the global system.

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