

Webinar Series

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'Modelling and Control of a Financial Epidemic'

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ABSTRACT: Financial crises in the recent past have exposed the need to connect modellers and those with relevant data as pivotal to better understanding of how crises spread and quantifying the effects of possible interventions. A framework for modelling a financial crisis based on transmission models from epidemic theory is presented. The framework allows for direct modelling of the inherent dependencies involved in the transmission mechanism and presents a measure of crisis severity. The model created describes how the crisis could potentially evolve in a population. Uncertainty analysis of a threshold parameter, the basic reproductive number, quantifies its sensitivity to other parameters. Necessary conditions for the optimal control of the financial crisis are derived. Numerical simulations are performed to illustrate the analytical results.



BIO: Dr Isaac Takaidza is a Senior Lecturer in Mathematics and Applied Mathematics at NWU Vanderbijlpark campus where he also serves as Deputy Subject Group Leader. He holds several qualifications: DTech (CPUT), MSc and BSc Hons (UZ), ADHE (UFS), PG Dip Man and MBA (NWU). He has lectured mathematical sciences at a number of universities in Zimbabwe and South Africa.

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