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Economic Contagion and the Role of Beliefs: Findings from a Borrower-Lender Game

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Following the 2007 global economic crisis, IMF chief economist Olivier Blanchard stated that "we have entered a brave new world…The economic crisis has put into question many of our beliefs. We have to accept the intellectual challenge." Recent crises – the 2007 crisis, the 2010 European debt crisis – have drawn a new landscape for how we view economic crises. They have elucidated the systemic nature of economic risk, where adverse economic events are able to spread from one country to the next through a process known commonly as contagion. The term "contagion" implies the infectious spread of economic malaise from a single source country outward. Debt and trade channels might explain an outward propagation of crises. However, the appearance of contagion may also result from the effect of a common cause. The complexities of these crises and the challenges they present have motivated the application of operations research, risk analysis and economics to a problem that is fundamentally economic in nature, but generates questions which an interdisciplinary approach may help to answer.

We present a within-period sequential-move game with multiple borrower countries and a single common lender to model cross-country contagion. We discuss the role of beliefs, modeled through Bayesian updating, and determine equilibrium solutions using nonlinear optimization. The model is calibrated to the 2010 Eurozone crisis, but sensitivity analysis is used to identify conditions under for contagion. Results demonstrate the importance of beliefs and that what appears to be contagion may be the result of a crisis of confidence. Findings and their policy implications are discussed.