

# Banks' cash stash: No shield against bankruptcy

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Imposing minimal capital levels for banks is like attempting to solve a complex jigsaw puzzle with a poorly fitting piece that could lead to even greater chaos.

According to [theoretical physicists](#) João da Cruz and Pedro Lind from Lisbon University, Portugal, imposing minimum capital levels for banks may not prevent the insolvency of a minority of banks from triggering a widespread banking system collapse. In a study recently published in *European Physical Journal B*, the researchers explain why this measure could instead lead to larger crises.

The authors created a model of banks' behaviour to assess the conditions needed to avoid "avalanches" of insolvent banks. Their model is based on a physical system of particles representing how banks are attracted to each other in order to exchange 'economic energy'. Then they applied to these particles the credit risk model Merton-Vasicek as theoretical framework for bank stability. They then applied the credit risk models used as the theoretical foundation for bank stability, known as the Merton-Vasicek model, to these particles.

The authors observed that the insolvency results in a break of all the bank's connections. As a result, it affects the 'economic energy' of all its neighbours. Due to the interplay between banks, the effect of a single insolvency is thus capable of triggering an avalanche in the banking system.

The authors showed that under an increase in the minimum capital level, the risk of large crashes is only reduced if the number of banks in the system remains fixed. As a result, their levels of business will drop. However, it is more realistic that banks will adjust to preserve their current levels of business and start forming new links with other banks. Indeed, the crucial factor for [banks](#)' growth is the ability of forming new links.

The authors conclude that rising capital requirements could have the opposite effect of making large avalanches, and therefore larger crises, more probable.

**More information:** The dynamics of financial stability in complex networks (2012). J. P. da Cruz, P.G. Lind, *European Physical Journal B*; [DOI 10.1140/epjb/e2012-20984-6](https://doi.org/10.1140/epjb/e2012-20984-6)

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