Helping regulators prevent the next financial crash

Groundbreaking research by LSE economists has influenced the design of new regulations aimed at preventing a repeat of the recent global financial crisis

What was the problem?

A small event can cause a major financial shock that spills over into the wider economy.

The recent financial crisis began with problems in an obscure part of the US housing market in 2007 but within three years had led to bank failures across the world, a global recession, a surge in unemployment and the near-collapse of the eurozone.

A team of researchers at the LSE has identified how major financial shocks are often caused by small problems within the system itself rather than an outside trigger. This idea that the cause of a crisis can grow almost unnoticed is what the researchers termed “endogenous risk”, which comes from the ancient Greek words for “growing” and “within”.

An example is the way that complex networks can accelerate and amplify the reverberation of shocks through the financial system, as in the case of high frequency trading in which price changes are transmitted to hundreds of markets within milliseconds.

Policymakers have been working hard at a national, regional and global level to prevent future crises. However the researchers found that regulations drawn up for this specific purpose can, perversely, become a channel for amplifying the problems and have precisely the opposite of the intended effect.

What did we do?

A team of finance experts at LSE wrote a series of papers in which they developed a way of modelling financial risk and regulation based on the concept of endogenous risk. They then considered how the proposed regulations would work, both at the macro level – how they affect the whole system - and at the micro level – how individual banks respond.

In a 2001 paper, An Academic Response to Basel II, Jon Danielsson, Charles Goodhart, Hyun Song Shin and other LSE academics showed that badly-designed regulation could amplify such risks. In 2004 Danielsson and Shin together with Jean-Pierre Zigrand found that rules that restrict the assets traders can hold in a crisis force them to take decisions that make the crisis worse.

An example is a requirement to sell assets whose prices have fallen, which means other investors have to sell as the price falls further, creating a vicious circle. In a 2012 working paper

for the UK Government Office for Science Foresight Project, Zigrand and others highlighted how high frequency trading — the use of computer programmes to rapidly trade assets — can exacerbate crises.

What happened?

The research resulted in significant changes to overall regulations and to regulations in the specific area of high frequency trading.

> "…we should follow the lead example and model of the UK Foresight project on computer trading".
>
> **EU Commissioner**

Overall regulation

One of the main impacts of the LSE research has been its influence on the way global and national regulators have designed rules to prevent a repeat of the 2008 crisis. The research led the Basel Committee at the Bank of International Settlements to insist that large institutions whose failure could cause a wider crisis hold more capital in reserve.

Goodhart played a role in influencing the financial regulation agenda of the Group of 20 — the world's largest economies — while Shin played an influential role as adviser to the President of the Republic of Korea ahead of the Seoul Group of 20 Summit in 2010. Advice by Goodhart and Shin to the Bank of England influenced regulatory reform in the UK.

Danielsson gave evidence to the Treasury Select and House of Lords Economics Affairs committees and held meetings with HM Treasury together with Zigrand to discuss endogenous risk. The research has also been used by the Banque de France, the New York Federal Reserve Bank and the European Central Bank and influenced the Icelandic and Luxembourgish central banks where Danielsson and Zigrand are advisors.

Regulation of high frequency trading

The Foresight research on high frequency trading, in which Zigrand acted as lead expert and Danielsson and Goodhart as commissioned experts, has been highly influential in both European and American policy-making contexts.

Plans to impose a half-second "minimum resting time" for all trading orders were dropped from the EU Markets in Financial Instruments Directive II ahead of a vote by the MEPs following discussions with Zigrand and colleagues. Instead, an alternative proposal in the Foresight report for time stamps based on synchronised atomic clocks across trading venues was added to the Directive. The European Securities and Markets Authority (the EU regulator) and the national regulators of Germany, France and the Netherlands have also consulted with Zigrand and colleagues.

The LSE researchers have also made presentations to various policy-making bodies, including 10 Downing Street, the EU Joint Research Centre, and in the US to the Senate Banking Committee, House Committee on Financial Services, and the Commodities Futures Trading Commission.

Zigrand was cross-examined by the UK Parliamentary Commission on Banking Standards and the LSE team's research was explicitly referenced in the House of Lords. LSE research has also influenced regulations covering European hedge funds, derivatives and counterparties.

LSE's work in this area has contributed to preventing a repetition of the financial crisis of 2008 and the risks that such a crisis would pose to the national and global economies.

Jean-Pierre Zigrand is director of the ESRC funded Systemic Risk Centre at the London School of Economics (LSE). He is also an associate professor of Finance at the LSE, a programme director at the Financial Markets Group and the director of the Executive MSc Finance programme at LSE. His research in financial economics is widely published and touches on endogenous systemic risk modelling, networks in finance and the economic effects of computer based trading. He has been a consultant to central banks, regulators and commercial finance institutions, a lead expert for the Foresight project on The Future of Computer Trading in Financial Markets and an experienced executive educator. He holds a PhD in economics from the University of Chicago and a BSc/MSc in Economics from the Université Catholique de Louvain.

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