

## VoxEU: Predictable financial crises

There is a long-standing debate on whether financial crises can be predicted. This column draws on a chronology of past financial crises and data on credit and asset prices and finds that if there is a large credit expansion with an asset price boom, then financial crises are highly predictable, **writes Robin Greenwood et al**



Source: Shutterstock

### How predictable are financial crises?

An important line of thought postulates that they are largely unpredictable. Each of the three principal US policymakers during the 2008 financial crisis has taken this position at different times. Former US Secretary of the Treasury Tim Geithner suggested that “Financial crises cannot be reliably anticipated or pre-empted.” According to former US Secretary of the Treasury Hank Paulson, “My strong belief is that these crises are unpredictable in terms of cause, timing, or the severity when they hit.” According to Federal Reserve Chairman Ben Bernanke, “This crisis involved a 21st century electronic panic by institutions. It was an old-fashioned run in new clothes.” This line of thought is further supported by early empirical studies showing that, even if most crises are preceded by weak economic fundamentals, they are not especially predictable. If these views are correct, then policymakers should concentrate their efforts on ‘firefighting’, or cleaning up after a crisis. But policing market conditions before crises actually happen would be futile.

An alternative view sees financial crises as predictable enough that policymakers should try to prevent or mitigate them ex ante. This view sees financial crises as the outcomes of overheated

credit markets, characterized by rapid expansions of credit accompanied by asset price booms (Minsky 1977 and Kindleberger 1978). Borio and Lowe (2002) show that rapid credit growth and asset price growth predict banking crises in 34 countries between 1970 and 1999, spurring numerous academic policy studies on so-called 'early warning indicators'. More recently, Schularick and Taylor (2012) and others have shown that credit expansions and narrow credit spreads predict financial fragility.

Even with all this evidence, precise estimates of the probability of a financial crisis following credit and asset price booms remain unavailable. In Greenwood et al. (2020), we draw on newly available crisis chronologies and data to estimate the probability of financial crises as a function of past credit and asset price growth.

## A key quote from the article:

*Our first finding is that if there is a large credit expansion with an asset price boom, then financial crises are in fact highly predictable. When either non-financial business credit growth is high and stock market valuations have risen sharply, or when household credit growth is high and home prices have risen sharply, the probability of a subsequent crisis is substantially elevated. This is shown in Table 1, where we list the probability of a financial crisis occurring within three years as a function of past credit and asset price growth. The probability of a crisis beginning within the next three years is 45% when equity price growth is in the top tercile of its historical distribution and business credit growth is in the top quintile of its historical distribution. When home price growth is in the top tercile and household credit growth is in the top quintile, the probability of a crisis beginning within three years is 37%.*

*We use these results to motivate a simple indicator variable called the Red-zone, or the 'R-zone' for short, that identifies periods of potential credit-market overheating. A country is in the 'business R-zone' if non-financial business credit growth over the past three years is in the top quintile of the historical distribution, and stock market returns over the same window are in the top tercile. Similarly, a country is in the 'household R-zone' if household credit growth over the past three years is in the top quintile of the historical distribution, and stock market returns over the same window are in the top tercile. Using these R-zone predictors, we show that crises are predictable but slow to develop, suggesting that policymakers have time to act based on early warning signs. For example, the US was in the household R-zone in 2002-2006, a clear harbinger of the crisis that started in 2007.*

The full and original article first appeared on VoxEU [here](#) on 15 July 2020.

## Author

**Amrita Naik Nimbalkar**

Junior Economist, Global Macro

[amrita.naik.nimbalkar@ing.com](mailto:amrita.naik.nimbalkar@ing.com)

**Alissa Lefebvre**

Economist

[alissa.lefebvre@ing.com](mailto:alissa.lefebvre@ing.com)

**Deepali Bhargava**

Regional Head of Research, Asia-Pacific  
[Deepali.Bhargava@ing.com](mailto:Deepali.Bhargava@ing.com)

**Ruben Dewitte**  
Economist  
+32495364780  
[ruben.dewitte@ing.com](mailto:ruben.dewitte@ing.com)

**Kinga Havasi**  
Economic research trainee  
[kinga.havasi@ing.com](mailto:kinga.havasi@ing.com)

**Marten van Garderen**  
Consumer Economist, Netherlands  
[marten.van.garderen@ing.com](mailto:marten.van.garderen@ing.com)

**David Havrlant**  
Chief Economist, Czech Republic  
420 770 321 486  
[david.havrlant@ing.com](mailto:david.havrlant@ing.com)

**Sander Burgers**  
Senior Economist, Dutch Housing  
[sander.burgers@ing.com](mailto:sander.burgers@ing.com)

**Lynn Song**  
Chief Economist, Greater China  
[lynn.song@asia.ing.com](mailto:lynn.song@asia.ing.com)

**Michiel Tukker**  
Senior European Rates Strategist  
[michiel.tukker@ing.com](mailto:michiel.tukker@ing.com)

**Michal Rubaszek**  
Senior Economist, Poland  
[michal.rubaszek@ing.pl](mailto:michal.rubaszek@ing.pl)

**This is a test author**

**Stefan Posea**  
Economist, Romania  
[tiberiu-stefan.posea@ing.com](mailto:tiberiu-stefan.posea@ing.com)

**Marine Leleux**  
Sector Strategist, Financials  
[marine.leleux2@ing.com](mailto:marine.leleux2@ing.com)

**Jesse Norcross**

Senior Sector Strategist, Real Estate

[jesse.norcross@ing.com](mailto:jesse.norcross@ing.com)

**Teise Stellema**

Research Assistant, Energy Transition

[teise.stellema@ing.com](mailto:teise.stellema@ing.com)

**Diederik Stadig**

Sector Economist, TMT & Healthcare

[diederik.stadig@ing.com](mailto:diederik.stadig@ing.com)

**Diogo Gouveia**

Sector Economist

[diogo.duarte.vieira.de.gouveia@ing.com](mailto:diogo.duarte.vieira.de.gouveia@ing.com)

**Marine Leleux**

Sector Strategist, Financials

[marine.leleux2@ing.com](mailto:marine.leleux2@ing.com)

**Ewa Manthey**

Commodities Strategist

[ewa.manthey@ing.com](mailto:ewa.manthey@ing.com)

**ING Analysts**

**James Wilson**

EM Sovereign Strategist

[James.wilson@ing.com](mailto:James.wilson@ing.com)

**Sophie Smith**

Digital Editor

[sophie.smith@ing.com](mailto:sophie.smith@ing.com)

**Frantisek Taborsky**

EMEA FX & FI Strategist

[frantisek.taborsky@ing.com](mailto:frantisek.taborsky@ing.com)

**Adam Antoniak**

Senior Economist, Poland

[adam.antoniak@ing.pl](mailto:adam.antoniak@ing.pl)

**Min Joo Kang**

Senior Economist, South Korea and Japan

[min.joo.kang@asia.ing.com](mailto:min.joo.kang@asia.ing.com)

**Coco Zhang**

ESG Research

[coco.zhang@ing.com](mailto:coco.zhang@ing.com)

**Jan Frederik Slijkerman**

Senior Sector Strategist, TMT

[jan.frederik.slijkerman@ing.com](mailto:jan.frederik.slijkerman@ing.com)

**Katinka Jongkind**

Senior Economist, Services and Leisure

[Katinka.Jongkind@ing.com](mailto:Katinka.Jongkind@ing.com)

**Marina Le Blanc**

Sector Strategist, Financials

[Marina.Le.Blanc@ing.com](mailto:Marina.Le.Blanc@ing.com)

**Samuel Abettan**

Junior Economist

[samuel.abettan@ing.com](mailto:samuel.abettan@ing.com)

**Franziska Biehl**

Senior Economist, Germany

[Franziska.Marie.Biehl@ing.de](mailto:Franziska.Marie.Biehl@ing.de)

**Rebecca Byrne**

Senior Editor and Supervisory Analyst

[rebecca.byrne@ing.com](mailto:rebecca.byrne@ing.com)

**Mirjam Bani**

Sector Economist, Commercial Real Estate & Public Sector (Netherlands)

[mirjam.bani@ing.com](mailto:mirjam.bani@ing.com)

**Timothy Rahill**

Credit Strategist

[timothy.rahill@ing.com](mailto:timothy.rahill@ing.com)

**Leszek Kasek**

Senior Economist, Poland

[leszek.kasek@ing.pl](mailto:leszek.kasek@ing.pl)

**Oleksiy Soroka, CFA**

Senior High Yield Credit Strategist

[oleksiy.soroka@ing.com](mailto:oleksiy.soroka@ing.com)

**Antoine Bouvet**

Head of European Rates Strategy

[antoine.bouvet@ing.com](mailto:antoine.bouvet@ing.com)

**Jeroen van den Broek**

Global Head of Sector Research  
[jeroen.van.den.broek@ing.com](mailto:jeroen.van.den.broek@ing.com)

**Edse Dantuma**  
Senior Sector Economist, Industry and Healthcare  
[edse.dantuma@ing.com](mailto:edse.dantuma@ing.com)

**Francesco Pesole**  
FX Strategist  
[francesco.pesole@ing.com](mailto:francesco.pesole@ing.com)

**Rico Luman**  
Senior Sector Economist, Transport and Logistics  
[Rico.Luman@ing.com](mailto:Rico.Luman@ing.com)

**Jurjen Witteveen**  
Sector Economist  
[jurjen.witteveen@ing.com](mailto:jurjen.witteveen@ing.com)

**Dmitry Dolgin**  
Chief Economist, CIS  
[dmitry.dolgin@ing.de](mailto:dmitry.dolgin@ing.de)

**Nicholas Mapa**  
Senior Economist, Philippines  
[nicholas.antonio.mapa@asia.ing.com](mailto:nicholas.antonio.mapa@asia.ing.com)

**Egor Fedorov**  
Senior Credit Analyst  
[egor.fedorov@ing.com](mailto:egor.fedorov@ing.com)

**Sebastian Franke**  
Consumer Economist  
[sebastian.franke@ing.de](mailto:sebastian.franke@ing.de)

**Gerben Hieminga**  
Senior Sector Economist, Energy  
[gerben.hieminga@ing.com](mailto:gerben.hieminga@ing.com)

**Nadège Tillier**  
Head of Corporates Sector Strategy  
[nadege.tillier@ing.com](mailto:nadege.tillier@ing.com)

**Charlotte de Montpellier**  
Senior Economist, France and Switzerland  
[charlotte.de.montpellier@ing.com](mailto:charlotte.de.montpellier@ing.com)

**Laura Straeter**

Behavioural Scientist  
+31(0)611172684  
[laura.Straeter@ing.com](mailto:laura.Straeter@ing.com)

**Valentin Tataru**  
Chief Economist, Romania  
[valentin.tataru@ing.com](mailto:valentin.tataru@ing.com)

**James Smith**  
Developed Markets Economist, UK  
[james.smith@ing.com](mailto:james.smith@ing.com)

**Suvi Platerink Kosonen**  
Senior Sector Strategist, Financials  
[suvi.platerink-kosonen@ing.com](mailto:suvi.platerink-kosonen@ing.com)

**Thijs Geijer**  
Senior Sector Economist, Food & Agri  
[thijs.geijer@ing.com](mailto:thijs.geijer@ing.com)

**Maurice van Sante**  
Senior Economist Construction & Team Lead Sectors  
[maurice.van.sante@ing.com](mailto:maurice.van.sante@ing.com)

**Marcel Klok**  
Senior Economist, Netherlands  
[marcel.klok@ing.com](mailto:marcel.klok@ing.com)

**Piotr Poplawski**  
Senior Economist, Poland  
[piotr.poplawski@ing.pl](mailto:piotr.poplawski@ing.pl)

**Paolo Pizzoli**  
Senior Economist, Italy, Greece  
[paolo.pizzoli@ing.com](mailto:paolo.pizzoli@ing.com)

**Marieke Blom**  
Chief Economist and Global Head of Research  
[marieke.blom@ing.com](mailto:marieke.blom@ing.com)

**Raoul Leering**  
Senior Macro Economist  
[raoul.leering@ing.com](mailto:raoul.leering@ing.com)

**Maarten Leen**  
Head of Global IFRS9 ME Scenarios  
[maarten.leen@ing.com](mailto:maarten.leen@ing.com)

**Maureen Schuller**

Head of Financials Sector Strategy

[Maureen.Schuller@ing.com](mailto:Maureen.Schuller@ing.com)

**Warren Patterson**

Head of Commodities Strategy

[Warren.Patterson@asia.ing.com](mailto:Warren.Patterson@asia.ing.com)

**Rafal Benecki**

Chief Economist, Poland

[rafal.benecki@ing.pl](mailto:rafal.benecki@ing.pl)

**Philippe Ledent**

Senior Economist, Belgium, Luxembourg

[philippe.ledent@ing.com](mailto:philippe.ledent@ing.com)

**Peter Virovacz**

Senior Economist, Hungary

[peter.virovacz@ing.com](mailto:peter.virovacz@ing.com)

**Inga Fechner**

Senior Economist, Germany, Global Trade

[inga.fechner@ing.de](mailto:inga.fechner@ing.de)

**Dimitry Fleming**

Senior Data Analyst, Netherlands

[Dimitry.Fleming@ing.com](mailto:Dimitry.Fleming@ing.com)

**Ciprian Dascalu**

Chief Economist, Romania

+40 31 406 8990

[ciprian.dascalu@ing.com](mailto:ciprian.dascalu@ing.com)

**Muhammet Mercan**

Chief Economist, Turkey

[muhammet.mercan@ingbank.com.tr](mailto:muhammet.mercan@ingbank.com.tr)

**Iris Pang**

Chief Economist, Greater China

[iris.pang@asia.ing.com](mailto:iris.pang@asia.ing.com)

**Sophie Freeman**

Writer, Group Research

+44 20 7767 6209

[Sophie.Freeman@uk.ing.com](mailto:Sophie.Freeman@uk.ing.com)

**Padhraic Garvey, CFA**

Regional Head of Research, Americas

[padhraic.garvey@ing.com](mailto:padhraic.garvey@ing.com)

**James Knightley**

Chief International Economist, US

[james.knightley@ing.com](mailto:james.knightley@ing.com)

**Tim Condon**

Asia Chief Economist

+65 6232-6020

**Martin van Vliet**

Senior Interest Rate Strategist

+31 20 563 8801

[martin.van.vliet@ing.com](mailto:martin.van.vliet@ing.com)

**Karol Pogorzelski**

Senior Economist, Poland

[Karol.Pogorzelski@ing.pl](mailto:Karol.Pogorzelski@ing.pl)

**Carsten Brzeski**

Global Head of Macro

[carsten.brzeski@ing.de](mailto:carsten.brzeski@ing.de)

**Viraj Patel**

Foreign Exchange Strategist

+44 20 7767 6405

[viraj.patel@ing.com](mailto:viraj.patel@ing.com)

**Owen Thomas**

Global Head of Editorial Content

+44 (0) 207 767 5331

[owen.thomas@ing.com](mailto:owen.thomas@ing.com)

**Bert Colijn**

Chief Economist, Netherlands

[bert.colijn@ing.com](mailto:bert.colijn@ing.com)

**Peter Vanden Houte**

Chief Economist, Belgium, Luxembourg, Eurozone

[peter.vandenhoute@ing.com](mailto:peter.vandenhoute@ing.com)

**Benjamin Schroeder**

Senior Rates Strategist

[benjamin.schroeder@ing.com](mailto:benjamin.schroeder@ing.com)

**Chris Turner**

Global Head of Markets and Regional Head of Research for UK & CEE

[chris.turner@ing.com](mailto:chris.turner@ing.com)

**Gustavo Rangel**

Chief Economist, LATAM

+1 646 424 6464

[gustavo.rangel@ing.com](mailto:gustavo.rangel@ing.com)

**Carlo Cocuzzo**

Economist, Digital Finance

+44 20 7767 5306

[carlo.cocuzzo@ing.com](mailto:carlo.cocuzzo@ing.com)