Lessons from Financial Crises – Historical Perspectives and Theoretical Concepts

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Economic history and economic theory

- The economic theory of financial crises has been influenced strongly by economic history
- Hardly any other field has benefited to a similar extent from the interaction of economic historians and economic theorists

Plan of the talk

I. What have we learnt so far - A brief history of the theory of financial crises

II. What we are just about to learn...

- The importance of contagion through asset prices

III. What we still need to learn - Implications for future research and regulation

I. What have we learnt so far - A brief history of the theory of financial crises

- The analysis of financial crises goes back at least to **Irving Fisher**
- However, (the formalization of) **Keynes**' theory and the **monetarist theory** reserved no special role for banks – their role was reduced to money creation
- This culminated in the **Modigliani-Miller theorem** (1958) claiming that banks and other financial institutions are irrelevant

Modern macroeconomics

- **Microeconomic foundation** of macroeconomic models
- Again no specific role for the financial system (Arrow-Debreu models)
- Money remains the central financial variable

The birth of the economics of asymmetric information

- Only with the advent of information economics, the modern theory of financial intermediation was born
- MMT does not apply due to **asymmetric information**
- Literature was predominantly **microeconomic**
- Central idea: In the presence of asymmetric information, banks and other financial intermediaries may play a useful role in order to **mitigate** these **information problems**

Early crisis models

- Diamond / Dybvig (1983):
  - Bank runs are the result of **self-fulfilling prophecies** in a multiple equilibrium framework
  - No identification of deeper causes: "...a bad earnings report, a commonly observed run at some other bank, a negative government forecast, or even sunspots"

Early crisis models

- **Information-based runs** (e.g. Chari/Jagannathan 1988):
  - Depositors withdraw their funds in reaction to (imperfect) information on their bank's solvency
- Bank runs as a **disciplining device** (e.g. Calomiris / Kahn 1991):
  - Depositors run on their bank in order to exert "**market discipline**" on the bank manager (this may be efficient)

Common features of these models

- Models deal with **only one bank** and thus cannot explain banking panics
- Models stress the **liabilities side** of banks' balance sheets (bank runs)
- Models stress **microeconomic shocks** that are perfectly diversifiable

Comparison with historical experience

- Many crises in the 19th/early 20th century indeed originated on the liabilities side
- Models explain the occurrence of bank runs and point to possible solutions (e. g., **deposit insurance**)
- But:
  - Fail to explain banking panics
  - Fail to explain the close relationship between macroeconomic shocks and financial crises

The issue of contagion

- Empirical observations suggest that banking problems are **contagious**
- Modelling of contagion requires a model of a banking sector to model externalities between banks
- Early literature on contagion stresses two channels:
  - **Interbank liabilities**
  - **Information**

Contagion through interbank liabilities

- E.g. Allen / Gale 2000
- When banks are connected through **interbank liabilities**, problems at one bank can spread through the whole network of interbank liabilities
- When some banks cannot fully repay their liabilities towards other banks, this endangers the solvency of other banks

Information contagion

- E.g. Chen (1999)
- The failure of one bank contains **information** on the value of assets at other banks because banks' returns are correlated
- Hence, depositors may rationally respond to a bank failure by withdrawing deposits from their own bank

Common features of these models

- Models explicitly deal with **several banks**
- Contagion works through the **liabilities side** of banks' balance sheets (bank runs)
- Models introduce **macroeconomic shocks** (aggregate risk), such as aggregate liquidity shocks and correlation of bank returns

Comparison with historical experience

- Models explain the occurrence of **banking panics** (but panics still look like 19th century panics)
- Models link financial crises to **macro-economic shocks** (robust empirical finding!)
- But:
  - Fail to explain the occurrence of **twin crises**
  - Evidence for the two channels of contagion is limited, some crises appear to be more severe than can be explained through the two channels

The importance of macroeconomic imbalances

- Empirical studies have documented the close link between banking and currency crises (**twin crises**), see e.g. Kaminsky/Reinhart (1999)
- In response to the Asian crisis, many researchers developed models to explain the **interactions** between banking and currency problems
- Major difficulty: How to combine the (**macroeconomic**) currency crisis literature with the (**microeconomic**) banking crisis literature?

The importance of macroeconomic imbalances

- Important results of these models:
  - Show how macroeconomic goals (e.g. stabiliz-ation of the currency) may **conflict** with the goal of financial stability (e.g. Chang / Velasco 2000)
  - Stress the importance of macroeconomic shocks on banks' **balance sheets** (e.g. Krugman 1999)
  - Macroeconomic imbalances may arise due to **moral hazard effects**: Anticipation of bail-outs leads to excessive capital inflows (e.g. McKinnon/Pill 1996, Krugman 1998)

Common features of these models

- Simultaneous bank failures are explained by **macroeconomic shocks** rather than contagion
- Models put **less** emphasis on the liabilities side of banks' balance sheets (e.g. balance sheet effects may affect both sides)
- Models point to limitations of **lender-of-last-resort policies** when countries have fixed exchange rate regimes

Comparison with historical experience

- Models have explanatory power for a number of twin crises
  (e.g. interwar period, Asian crisis)
- But:
  - Macroeconomic shocks are assumed to be **exogenous**
  - Models do not take into account **feedback effects** from the banking sector to the macroeconomy (e.g. asset prices, liquidity)

II. What we are just about to learn…

- **Feedback effects** from the banking sector to the macroeconomy (and back to the banking sector) are important
- The financial sector can **reinforce** macroeconomic shocks
- Contagion may also work through the **assets side** of banks' balance sheets

Importance of feedback effects in the current crisis

- How could the breakdown of a relatively small market (subprime mortgages in the US) cause a worldwide financial and economic crisis?
- Hellwig (2008): The severity of the crisis can be explained by **systemic interlinkages** and **macroeconomic repercussions**.

Deleveraging of SIVs

- Downgrading of asset-backed securities by rating agencies triggered **withdrawal of funds** from SIVs, which were subject to **excessive maturity transformation**
- In the absence of alternative funding, financial institutions had to **sell assets**, depressing asset values (**liquidity spirals,** Brunnermeier 2009)

A new phenomenon?

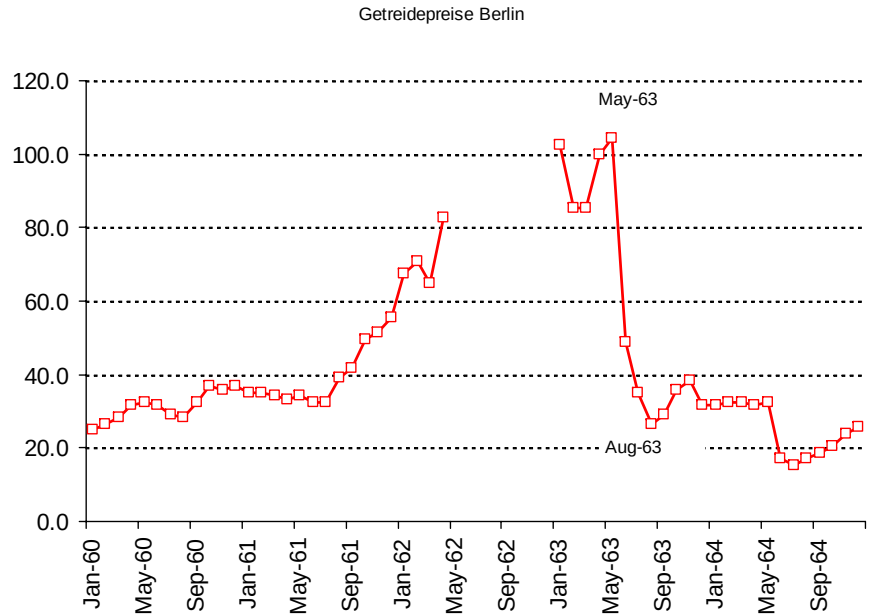
- Is contagion through asset prices a new phenomenon caused by financial innovation, such as securitization, credit derivatives etc.?
- No! There are many historical examples
- One example: The crisis of **1763** (Schnabel / Shin 2004)

Crisis of 1763

- Banks = merchant bankers
- Assets = grain, sugar, etc.
- International linkages through long chains of bills of exchange
- Crisis is triggered by breakdown of large banking house (De Neufville) in Amsterdam
- Outbreak of a systemic crisis, spreading to Hamburg, Berlin, Stockholm

Contagion through asset prices

- Unraveling of chains of bills of exchange enforces fire sales of assets (presumably at prices below their fundamental values)



Contagion through asset prices

- Contagion affects any financial institution with **similar asset holdings** that has to sell assets
- With **fair-value accounting**, it also affects institutions that do not want to sell assets
- Downward spiral of prices is still reinforced if assets are **information-sensitive**
- Strength of initial shock is **multiplied by feedback effects** on prices

Contagion through asset prices

- Distinction between **illiquidity** and **insolvency** is blurred
- Traditional prescription of LOLR policy does not apply
- Crisis affects **both sides** of banks' balance sheets
- **Financial markets** play an important role in reinforcing the crisis

III. What we still need to learn … Implications for future research and regulation

- How to implement a **macroprudential approach** to regulation that takes into account macroeconomic shocks / feedback effects and avoids **procyclicality**?
- How to **regulate the liquidity** of financial institutions if it depends largely on the liquidity of **markets**?
- How to avoid **regulatory arbitrage** and the build-up of shadow banking systems?

Thank you very much for your attention!