Global Financial Systems
Chapter 20
Plumbing

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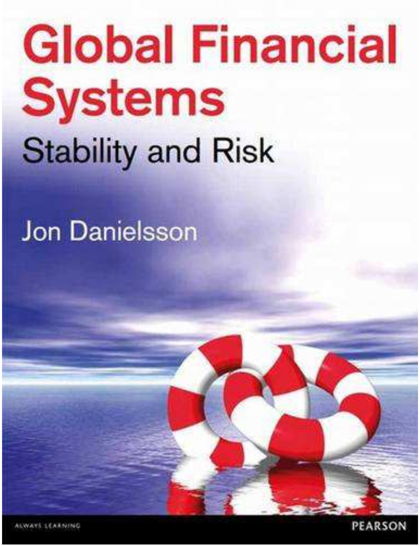
To accompany
Global Financial Systems: Stability and Risk
http://www.globalfinancialsystems.org/
Published by Pearson 2013

Version 5.0, August 2018

Book and slides



- The tables and graphs are the same as in the book
- See the book for references to original data sources
- Updated versions of the slides can be downloaded from the book web page

  `www.globalfinancialsystems.org`

Plumbing

- Refers to the infrastructure that makes the financial system work, and tools used by market participants
- We discuss a small subset, those most relevant to theme of book
- Payment systems
- CCPs
- Margins
- Trading strategies including carry trades
- Securitization

Content

- These slides combine content from
- Chapter 9: CCPs, trading strategies,
- And have some new content

Payment system

Payment system

- Used to settle payments by transferring money between economic agents
- Can refer to a narrow system perhaps enabling one owner of a mobile phone to transfer money to another
- But usually refers to a national system, either directly operated by the government (typically central bank) or directly under its control
- Also refers to an international system like SWIFT
- The payment system is fundamentally to an efficient economy
- If it fails, economic activity grinds to a halt
- Nobody can make any electronic payments, including debit/credit cards

Features

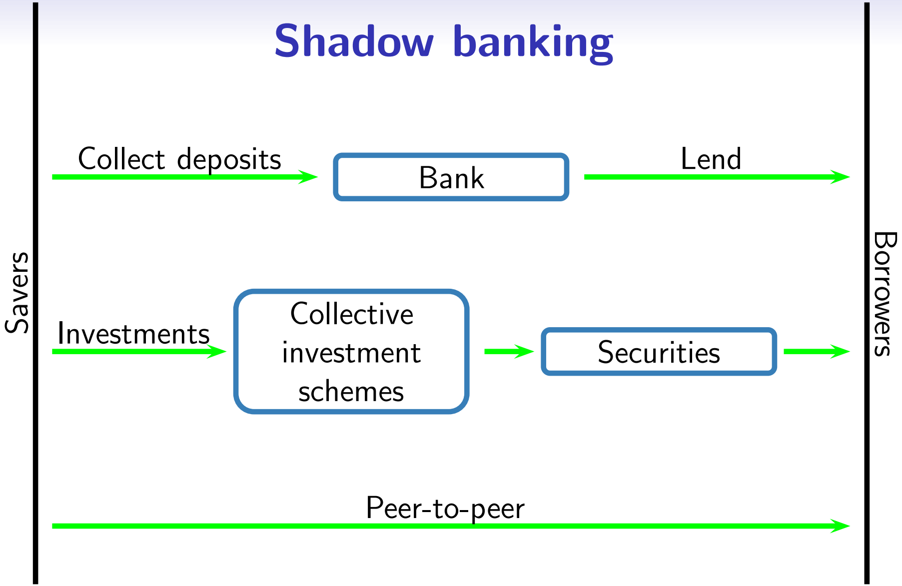
- Real-time gross settlement systems (RTGS). Immediate, no netting. Final and irrevocable.
- Eurosystem has TARGET2
- Federal Reserve Banks, Fedwire (RTGS, for banks with accounts at the Fed)
- Visa, Mastercard, Apple Pay, Alipay, Paypal, etc.
- Integrity of the payment systems is of primary national interest, including guarding against criminals, terrorists and hostile nation states

Shadow Banking

Shadow banking

- Credit intermediation that involves entities and activities (fully or partly) outside the regular banking system.
- Term created in 2007
- Before known as market-based finance or non-banks
- Historically mostly US

Shadow banking



Money market funds (MMF)

- Intermediary that manages money
- Low-risk securities (commercial paper, certificates of deposits and treasuries)
- Ability to withdraw money at short notice
- Maintain the value of the principal of its assets
- Higher yield than bank accounts
- Big worry in US and especially China

Why worry?

- Systemic risk
- Regulatory arbitrage
  - Asian crisis — Thailand
- Monetary policy transmission
- Channel for capital flows
- Unknown unknowns

Benefits — ~~Shadow~~ Parallel banking

- More competition
- More diverse financial system
- Financial inclusion

Trading and Risk

Market participants

- General term referring to those who engage in trading
- Proprietary trading (*prop trading*) buying and selling for a financial institution's own account, in order to make speculative profits
    - this is the target of the US Volcker rule, UK Independent Commission on Banking (Vickers report), EU Liikannen report
- Institutionalization, outsource investment decisions, perhaps using a benchmark to evaluate performance
    - plenty of scope for abuse (e.g. underperformance and fraud)
    - hence highly regulated (micro–prudential regulations)

Hedge funds (HFs)

Lightly but not unregulated

- Lightly regulated funds. Sometimes restricted to only sell to sophisticated and wealthy investors (*accredited*)
- Who consequentially should be able to take care of themselves (no need for micro–prudential protection)
- Still subject to securities laws and deal with regulated parts of the financial system
- Prime brokers
- Difficult to classify (except by absence of regulations)
- Before 2007 thought to be the main source of financial instability (echoes of 1998 and LTCM)

Financial innovation

- Create new types of financial instruments
- Viewed favorably until 2007
- Perhaps because only proponents understood it
- We look at CDS, CDO, SIV, conduits, etc. later

"the most important financial innovation that I have seen in the past 20 years is the automatic teller machine"

Financial innovation "moves around the rents in the financial system", benefiting the inventor, not the clients.

Paul Volcker 2009

Trading Activities

Trading strategies

- Rules used by traders when deciding what to buy and sell
- Can be highly formalized and automated (like HFTs)
- Or a vague preference for low–risk or safe investments
- Often are unconscious
- We have seen several examples, especially in the endogenous risk chapter
- Discuss momentum, value, technical trading, carry, short, HFT below

Value investing

- Find companies trading below their *inherent worth*
- Stocks with strong fundamentals like earnings, dividends, book value, cash flow
- The strategy of Warren Buffett
- One example of a mean reversion trade

Seeking yield is maximizing risk

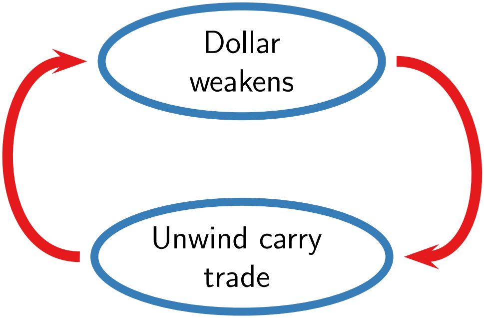
Warren Buffett

Carry trades

- Exploiting differences in yields
- We focus on foreign exchange carry trades
- Borrow money in a country with low interest rates, exchange it for a currency with high interest rates
- Profit from interest differential and the resulting foreign–exchange appreciation
- Very controversial because leads to excessive inflows of *hot money* and inability to manage exchange rates (we discuss this in detail later)

Endogenous risk feedback in unwinding

up by the escalator and down by the elevator (lift)



Carry trades as a source of contagion

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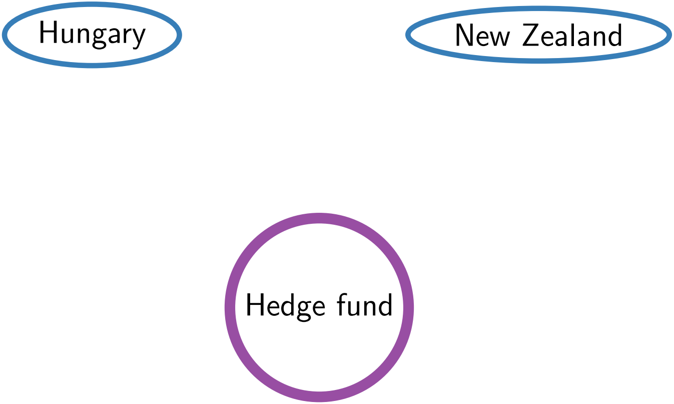

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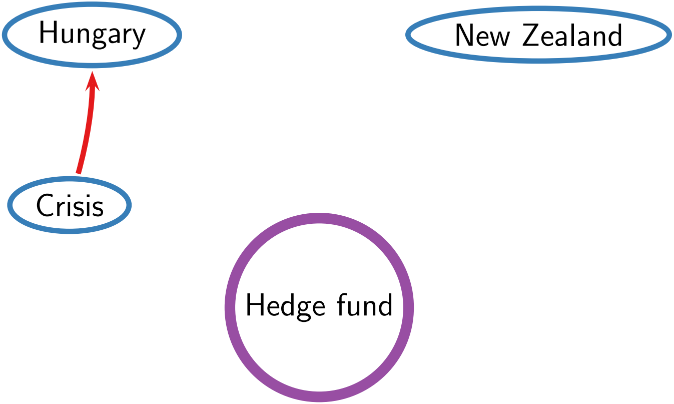
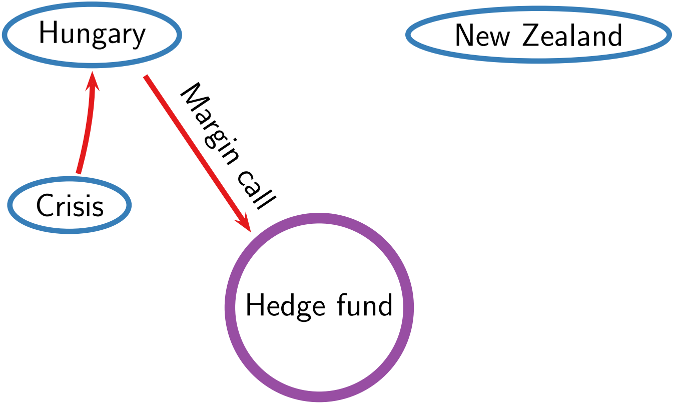
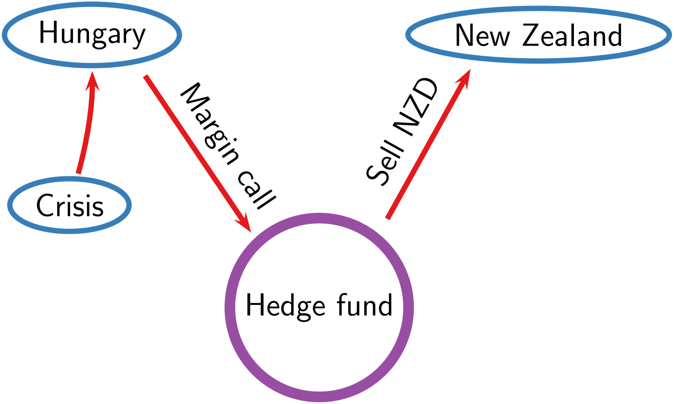


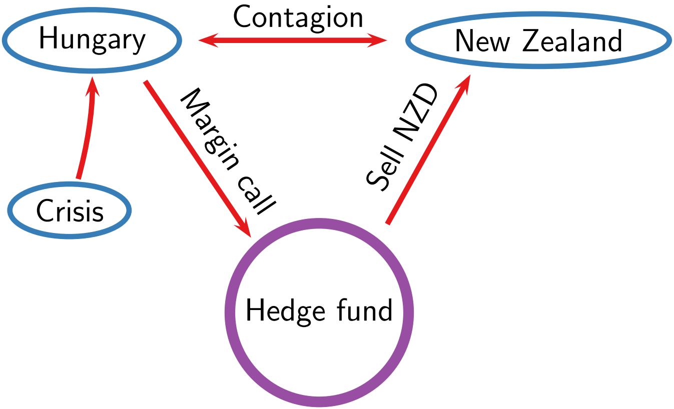
Carry trades as a source of contagion



Carry trades as a source of contagion



Carry trades as a source of contagion



Technical trading

- Forecasting prices with quantitative methods
- Often successful with statistical arbitrage and HFT
- Less likely to work at lower frequencies
- Many studies proclaiming it works
- A problem with data mining. Forecasting in–sample not a proof of success
- Most public studies have methodological problems
- However, if someone is successful they will not really talk about it in any detail

Momentum — trend following

- Buying assets that have seen recent price increases and selingl those that have fallen in price
- Can endogenously affect prices (self–validating in the short run)
- In the long run may cause bubbles and crashes
- May be conscious, but perhaps more likely done subconsciously
- For example, we only engage with successful managers

High–frequency trading (HFT)

- Using technology to beat everybody else
- Famous example Nathan Rothschild, pigeons and Napoleon's defeat in Waterloo in 1815
- Now done with high–speed computers, data networks and algorithmic trading
- Main fears crystallized in the flash crash of May 2010

Short selling

- Selling assets one does not own — borrow with the intention of buying back later
- In many cases a legitimate hedging activity
- But can be used to make directional speculative bets
- Difficulties in sorting out economic vs. political or moral arguments

Naked short selling

Two different activities

A. A short speculative position, rather than hedging

B. Short selling an asset without borrowing it

Issues

- Profits from falling markets
- But is it any different from just selling assets one owns?
- Hard to see an economic distinction
- Hence the political/moral dimension of profiting from a crisis, or causing prices to fall
- Frequently banned
- However little empirical evidence indicating damage from short–selling or effectiveness of banning

Central (clearing) counterparty (CCP)

Clearing and settlement

- There are a host of chores to do after trades are agreed ...
- *Clearing houses* mitigate counterparty risk among broker-dealers
- Depository Trust & Clearing Corp. in the U.S. cleared \$1.48 *quadrillion* of trades and held \$34 trillion of securities in trust in 2009
- Some clearing houses act as *central counterparties*, e.g. in many futures and options exchanges

CCPs

- One way to mitigate the systemic risk from CDSs, and the like is *central counterparties*
- But, will CCP create new systemic risk?
- Should eliminate asymmetric information
- Ideally one CCP or clear cross netting arrangements
- i.e. CCP is the legal counterparty to every market participant

Moving to CCPs

- Promises to solve the problem of asymmetric information
- Many exchanges
  - Cross netting?
- They can not be allowed to go bust. See next slide
- National ambitions get in the way

But the CCP can not allowed to fail

- Huge amount of default risk concentrated in the CCP, and *everyone* is exposed to it
- Should the CB backstop it?
- Will it excessively increase margins during crisis and create *endogenous risk*?
- Ensuring the CCP is well capitalized means standardizing margining across the whole market: positive feedback
- Unless there's just one CCP, clearing and netting between CCPs becomes an issue