

# Global Financial Systems

## Chapter 15

### Dangerous Instruments

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To accompany

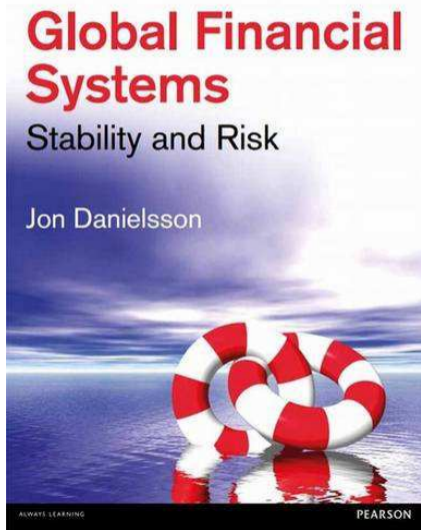
*Global Financial Systems: Stability and Risk*

[www.globalfinancialsystems.org/](http://www.globalfinancialsystems.org/)

Published by Pearson 2013

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## Book and slides



- Updated versions of the slides can be downloaded from the book web page [www.globalfinancialsystems.org](http://www.globalfinancialsystems.org)

# Complexity and Derivatives

# Complexity kills

- Before 2007 complexity was considered good
- It was very profitable (why?)
- And the dangers not recognized
- The crisis caused counterparties is to assume the worst
- And institutions to not understand their positions
- Ignores liquidity, nonlinear dependence and even fat tails

# Derivatives

“Derivatives are financial weapons of mass destruction, carrying dangers that, while now latent, are potentially lethal.”  
Warren Buffett



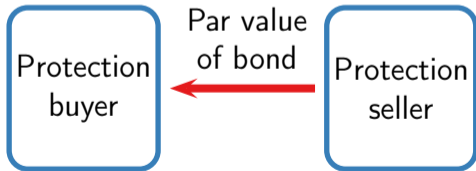
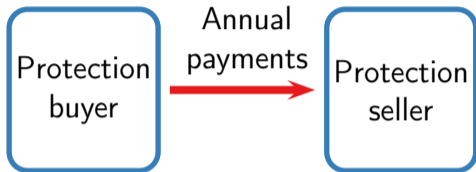
# Credit Default Swaps — CDSs

“catastrophic enabler of the dark forces that have swept through financial markets”.

“They are, says a former securities regulator, a ‘Ponzi Scheme’ that no self-respecting firm should touch.”... “Alan Greenspan, who used to be a cheerleader, has disowned them in ‘shocked disbelief’. They have even been ridiculed on ‘Saturday Night Live’, an American TV show.”



# Simple CDS payment flow



# CDS

Over-the-counter (OTC) transaction involving two counterparties:

## The Protection Buyer

1. Pay premium
2. Receive default payment if credit event occurs
3. Sells/hedges *credit* risk
4. Equivalent to selling a bond

## The Protection Seller

1. Receive premium
2. Pay default payment if credit event occurs
3. Buys/take on *credit* risk
4. Equivalent to buying a bond

# Terminology

- Reference entity** The legal entity which borrows money;
- Reference obligation** Any debt or obligation that is “referenced” in the transaction;
- Notional principle** Quantity upon which interest or other payments are computed;
- Credit event** Any event that happens in respect of the reference entity that triggers payment under the CDS, this includes bankruptcy, restructuring, repudiation of debt.

## An example

5 Year CDS on \$100 million principal, starting in 1 Sep 2013 whereby the buyer agrees to pay 90 bps (CDS spread) annually

- If no default, the buyer receives zero payoff
- And pays \$900,000 on September 1 on 2014, 2015, 2016, 2017, and 2018
- If there is a credit event, and *physical settlement*
  - buyer receives \$100 million
- If *cash settlement*, supposing recovery value is \$35 per \$100 of face value
  - buyer receives \$65 million

## Why use CDSs?

- To manage and hedge credit risk better, CDSs reduce the impact of a loss on a single party
- CDSs permit risk-taking in a tailored way, users can choose whether to increase or decrease exposures to countries, market sectors, etc.
- Firms can earn premium from parties who want credit exposure without owning the assets
- To provide access to exposures that would not otherwise be available

# Risks of CDSs

- Protection buyer faces *counterparty risk* on the performance of the protection seller
- The value of the CDS contract can change without a credit event
- Protection seller faces liquidity risk on any margin requirements generated by any CDS spread moves
- CDS spreads depend on the perceived probability of default, arguably some will have more information to estimate this probability than others
- Creating *information asymmetry*

# CDS network risk creation

1: Initial exposure

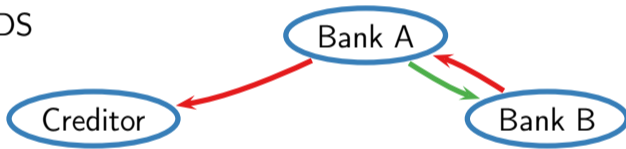


# CDS network risk creation

1: Initial exposure



2: CDS



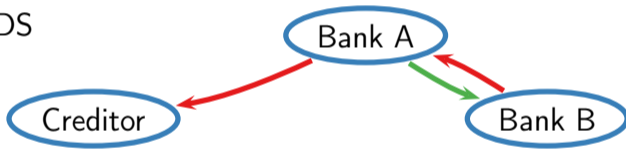


# CDS network risk creation

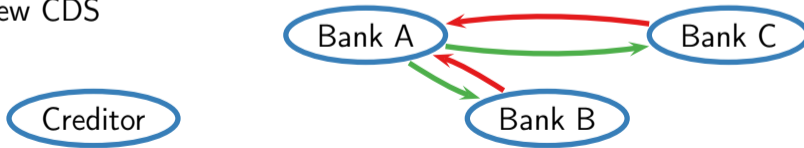
1: Initial exposure



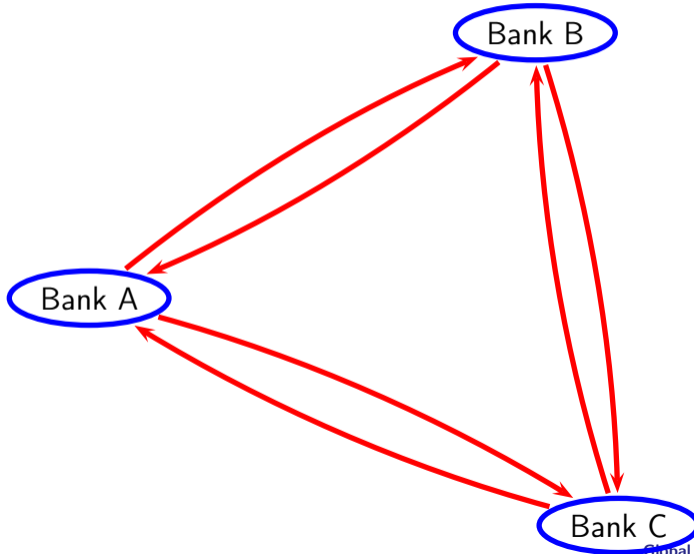
2: CDS



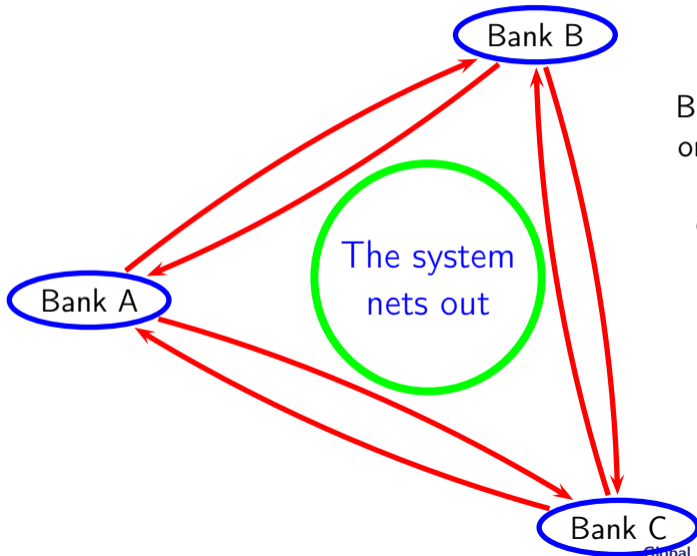
3: New CDS



# Netting out



# Netting out



But each bank only knows its own obligations.

Information asymmetry

## Main problem with CDSs

- Because they are bespoke and OTC it is hard to *net positions* — i.e., aggregate positions to find the net exposure
- This means that a bank can have a large *gross* position, but *zero net exposure*
- Lehmans came close to that
- However, the net exposure is only found out after failure
- This problem can be solved by CCPs

## Naked CDSs

- Trading CDSs for purely speculative reasons without owning the underlying asset
- Insurable interest is missing
- What might happen if a person could buy fire insurance on their neighbor's house

“I think that derivative products like the CDS on sovereign debt have to be at least very, very regulated, rigorously regulated, limited or banned”  
Christine Lagarde, former French minister and now the managing director of the International Monetary Fund (IMF)

# Collateralized Debt Obligations

## CDOs