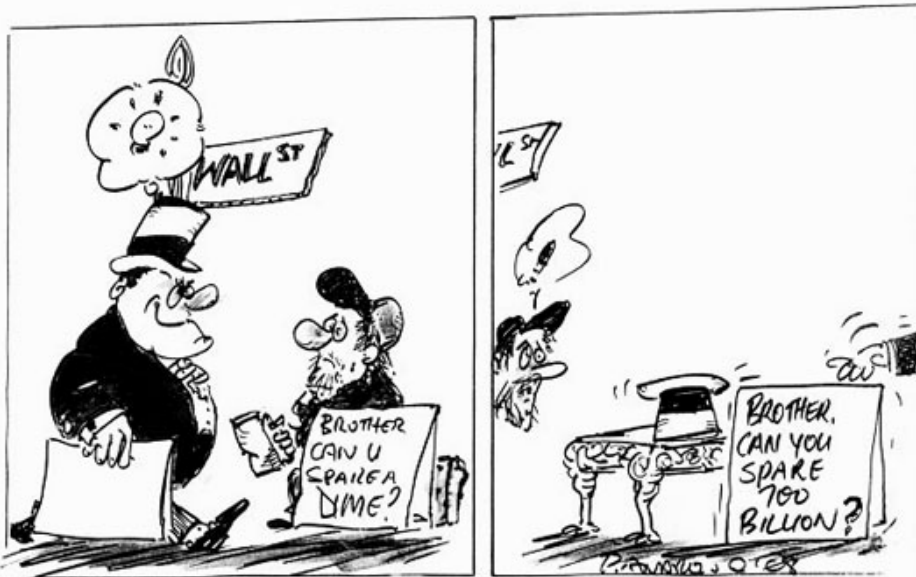


# Casino Royale: Derivatives and the Financial Meltdown

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February 2009

# Overview

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- Underlying cause of the financial market meltdown:  
Derivatives
- What is a derivative?
- What kinds of them are there and how many have been created?
- To show the nature of the problem, focus on one type: the credit default swap (CDS)
- Hypothetical illustration: fire insurance offered as a CDS
- Real world example: Lehman Brothers
- The issue derivatives present in bailout of financial system

# What Is a Derivative?

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- Derivatives are created by contracts made between any two financial institutions that typically run hundreds of pages in length -- and they are designed to hedge economic risk
- The contract specifies what each of them provides and receives in an event posing material financial risk
- The institution at each end of the contract is a counterparty
- A typical derivative is written for a fee expressed as a percentage of the face (or notional) value of the contract per year
- By design of our government, there is no central clearing house, no central reporting, and no disclosure of these instruments

# Types of Derivatives

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- Derivatives come in various categories
  - Derivatives written on mortgage securities
  - Credit default swaps
  - Currency swaps
  - Interest rate swaps
  - Equity swaps, and
  - Derivatives on derivatives (e.g. CDOs, CDOs Sq'd)

# Amount of Derivatives Created

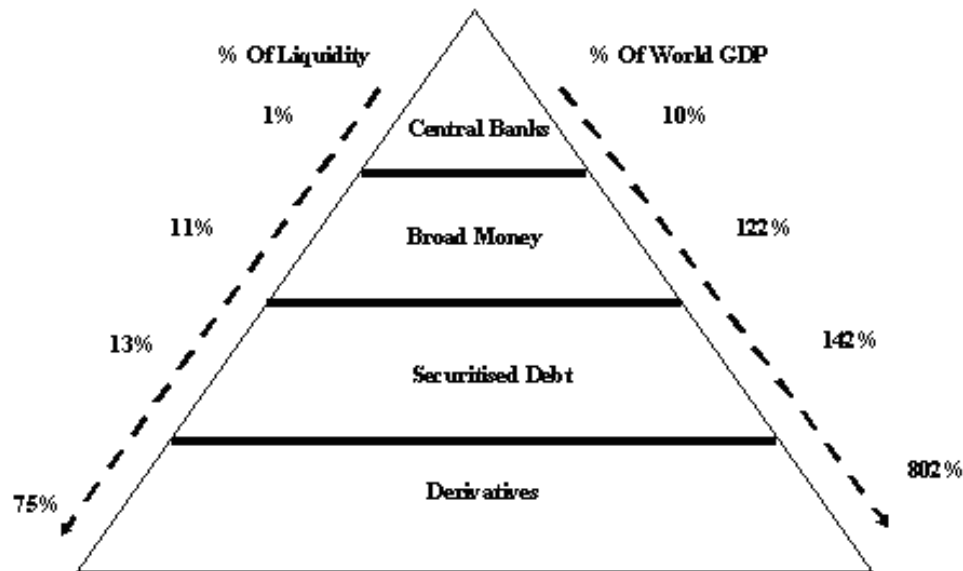
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- There were 1000 TRILLION dollars worth of these instruments in existence at the end of 2008 according to the best estimate of the derivatives association in the absence of official disclosure
- This is double the value they represented in 2007
- By comparison, the total GDP of the world is estimated at 60 trillion dollars
- This fantastic amount is notional and its real economic effect would be far less once all deals are netted out
- Still, only a 1% default rate would leave the other end of contracts involved exposed to \$10 trillion of economic risk.

# Liquidity Created By Derivatives

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## Liquidity Factory



Source: Independent Strategy. This version is adapted from Andrew Cornell, "The Year of Easy Money," The Weekend Australian Financial Review, Dec. 27 - Jan. 1, 2007

# Credit Default Swaps (CDS)

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- To illustrate the potentially devastating financial consequences of derivatives, focus on the CDS
- It is estimated that at the end of 2008 there were \$55 trillion worth of credit default swaps in effect
- A CDS is insurance -- but unlike ordinary insurance the issuer is not regulated as an insurance company would be
- A typical CDS is written for five years for a fee of 3% to 5% of the face value of the swap.
  - To “insure” \$100 million worth of marginal bonds, the purchaser might buy a CDS at a cost of \$5 million per year
  - Such extravagant fees to the seller explain the allure of CDSs
  - Think AIG

# Credit Default Swaps (CDS) (continued)

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- The term “credit default swap” was chosen specifically because it does not contain the word “insurance”
- This enables the institutions entering into them to avoid insurance regulation
- Consequently, the seller of a CDS does not have to meet a specific regulated reserve requirement to cover payment in event of default -- and the buyer does not have to have what the insurance industry calls an “insurable risk”
- In addition, there is no regulator keeping an eye on the volume of, and risks created by, these instruments.

# Credit Default Swaps (CDS) (continued)

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- Compounding the risks, investors buy CDSs from highly leveraged hedge funds or investment banks with debt-to-equity ratios of 30 or 40 to 1
- Meaning that the sellers have very little in the way of equity in the pot to cover the risks they are insuring
- Remember, the Great Depression was brought on by 10 to 1 leverage in the stock market
- Bear Stearns and Lehman Brothers roiled financial markets when they failed in large part owing to CDSs they had sold

# Hypothetical Illustration: Fire Insurance as a CDS

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- I own a house and I buy a fire insurance policy on it
- It burns down and I get paid \$1 million
- Now assume, hypothetically, 40 other people have made a side bet on whether my house will burn down -- so there are 40 other policies set to pay \$1 million if my house burns down
  - These “policies” however aren’t purchased from insurance companies but rather take the form of CDSs
  - Let’s call them “House Burn Down Swaps (HBDS)”

# Hypothetical Illustration: Fire Insurance as a CDS

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- These HBDSs are analogous to CDSs and thus bypass the capital reserve requirement and insurable risk practice of regulated insurance companies
- My house burns down
- 40 people line up to collect their side bets of \$1 million from the various parties selling the swaps
- Let's say that only five sellers sold these swaps -- so that's \$8 million per seller
- Each seller, highly leveraged, has only \$200,000 of equity in his fund with the rest borrowed from banks

# Hypothetical Illustration: Fire Insurance as a CDS

(continued)

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- Thus, an every day event like my house burning down, which in the real world would yield a \$1 million payment from an insurance company well capitalized to pay it,
- Has through swap side bets led to bank losses of \$39 million
- Consider the infinite variations of this example to get some idea of the problem derivatives pose with \$55 trillion of CDSs and \$1000 trillion of derivatives of all kinds out there
- In my example, an initial loss of \$1 million (analogous to a 5% default rate on home mortgages) has been magnified through undisclosed side bets to a \$39 million problem for the banks.

# A Short Digression

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- You might say swaps are just like options which have been written and honored for years without serious problems
- But, options are cleared through the CBOE which makes sure strict financial requirements are met by the parties selling the options so contracts will be honored when the time comes
- Also, options flow through a central clearing house, the options exchange, on terms disclosed to the participants
- Options are not, in general, bought from sellers with the kinds of fantastic leverage hedge funds and investment banks selling CDSs took on
- For all these reasons, the options market has been orderly

# Real World Example: Lehman Brothers

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- Lehman Brothers failure and the subsequent reaction to it in the financial markets illustrate the issues raised by CDSs traded in the trillions with no disclosure, no central clearing house, no central reporting, very high leverage, and no collateral required for the side bets being made
- \$400 billion worth of CDS contracts were sold on \$150 billion of underlying Lehman debt.
- There was no disclosure of who took what risk in making these arrangements
- Arguably, \$150 billion of CDS “insurance” against a default on Lehman bonds was justified
- The rest, \$250 billion, represent side bets, chiefly by hedge funds, on the demise of Lehman

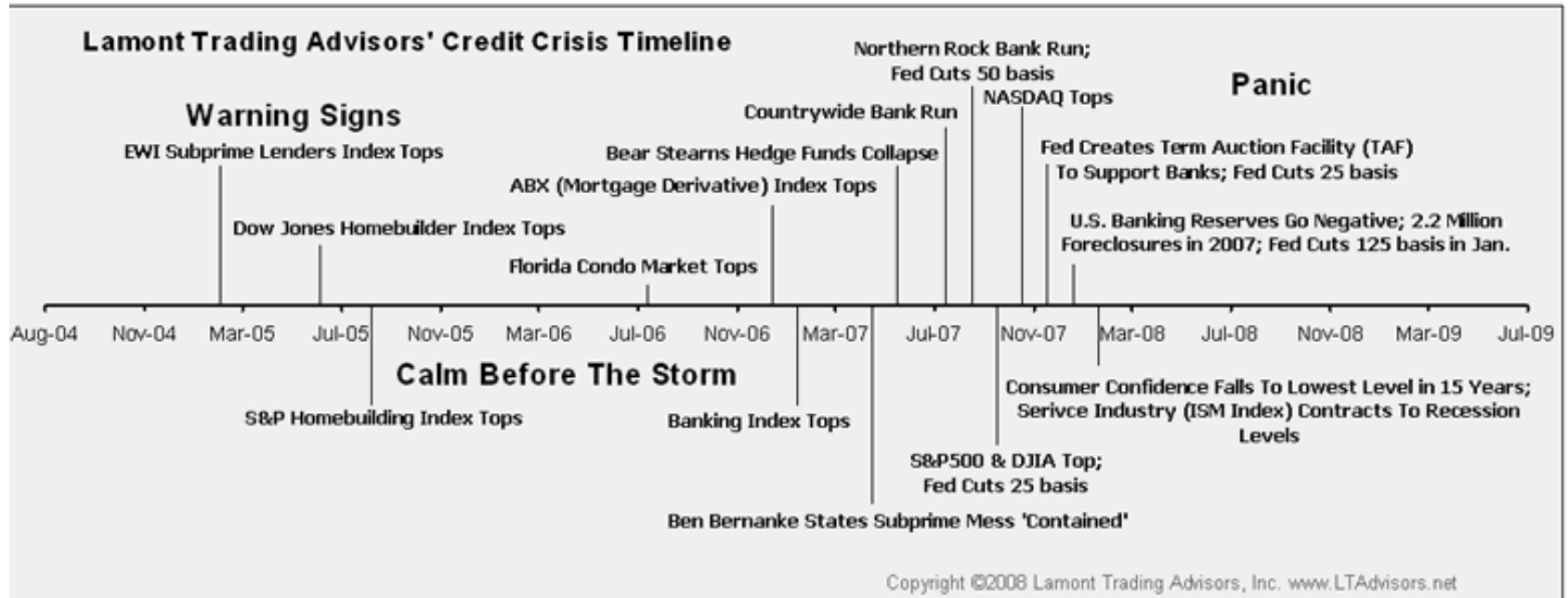
## Real World Example: Lehman Brothers (continued)

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- In addition, it is estimated that Lehman had \$13 trillion worth of derivatives on its books -- derivatives it sold to others
- The Finance Minister of France has characterized allowing Lehman to fail a “dramatic [policy] error”
- With its vast interconnecting financial relationships, Lehman’s bankruptcy set off a meltdown of the world financial system, forcing North America, Britain, Europe, Australia, and parts of Asia to rescue their banks.

# Consequences Unfold

## Credit Crisis Timeline

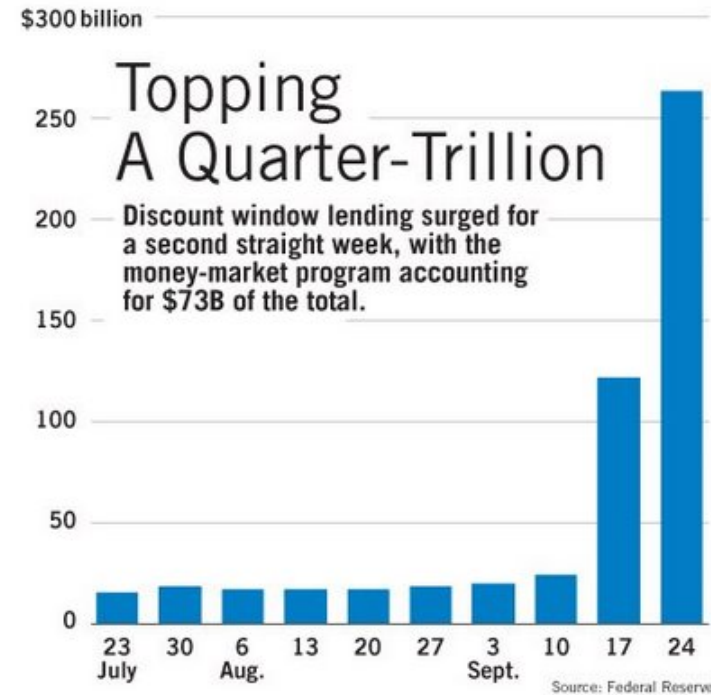


# Consequences Unfold

## Freddie Collapses

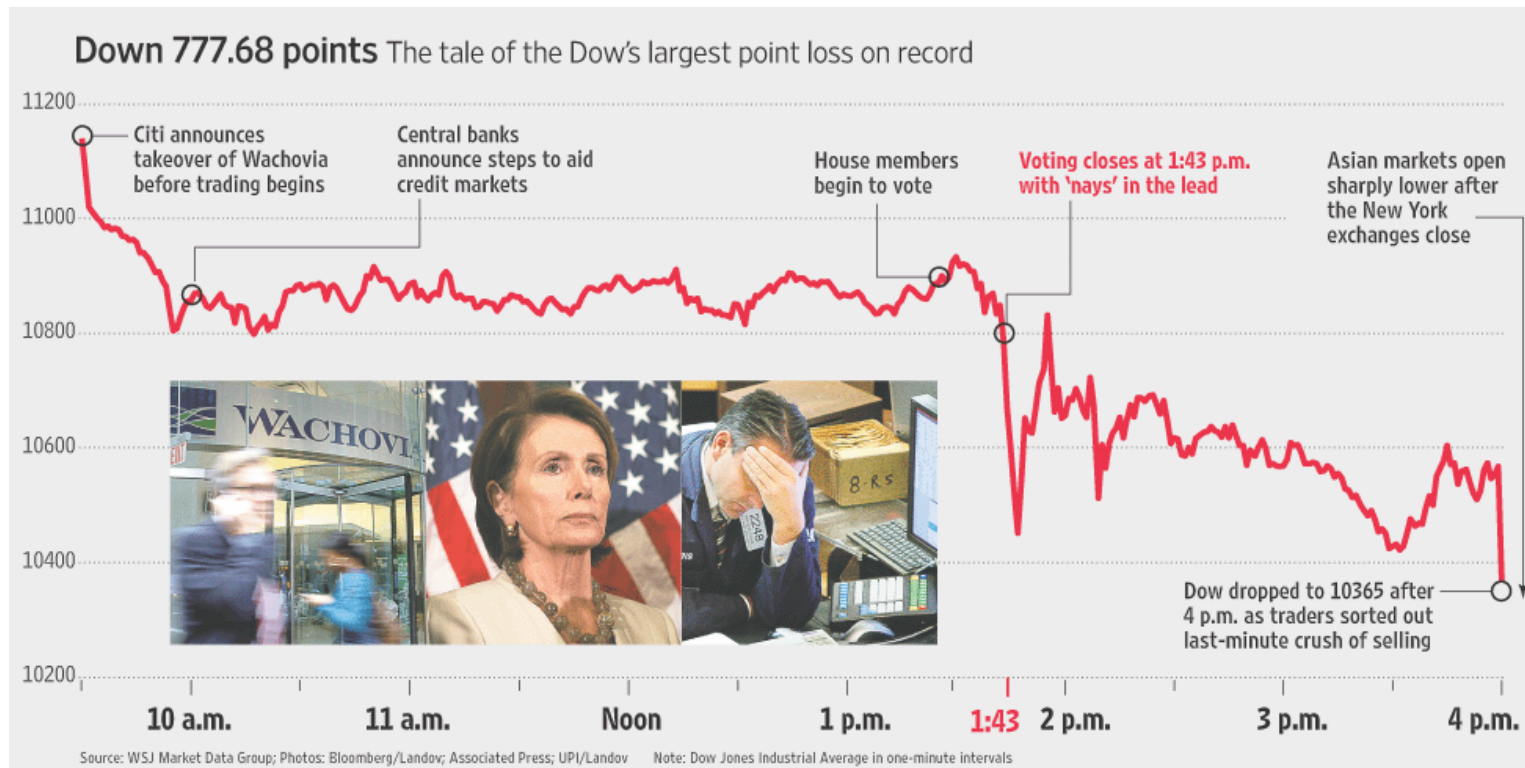


## Fed Reacts



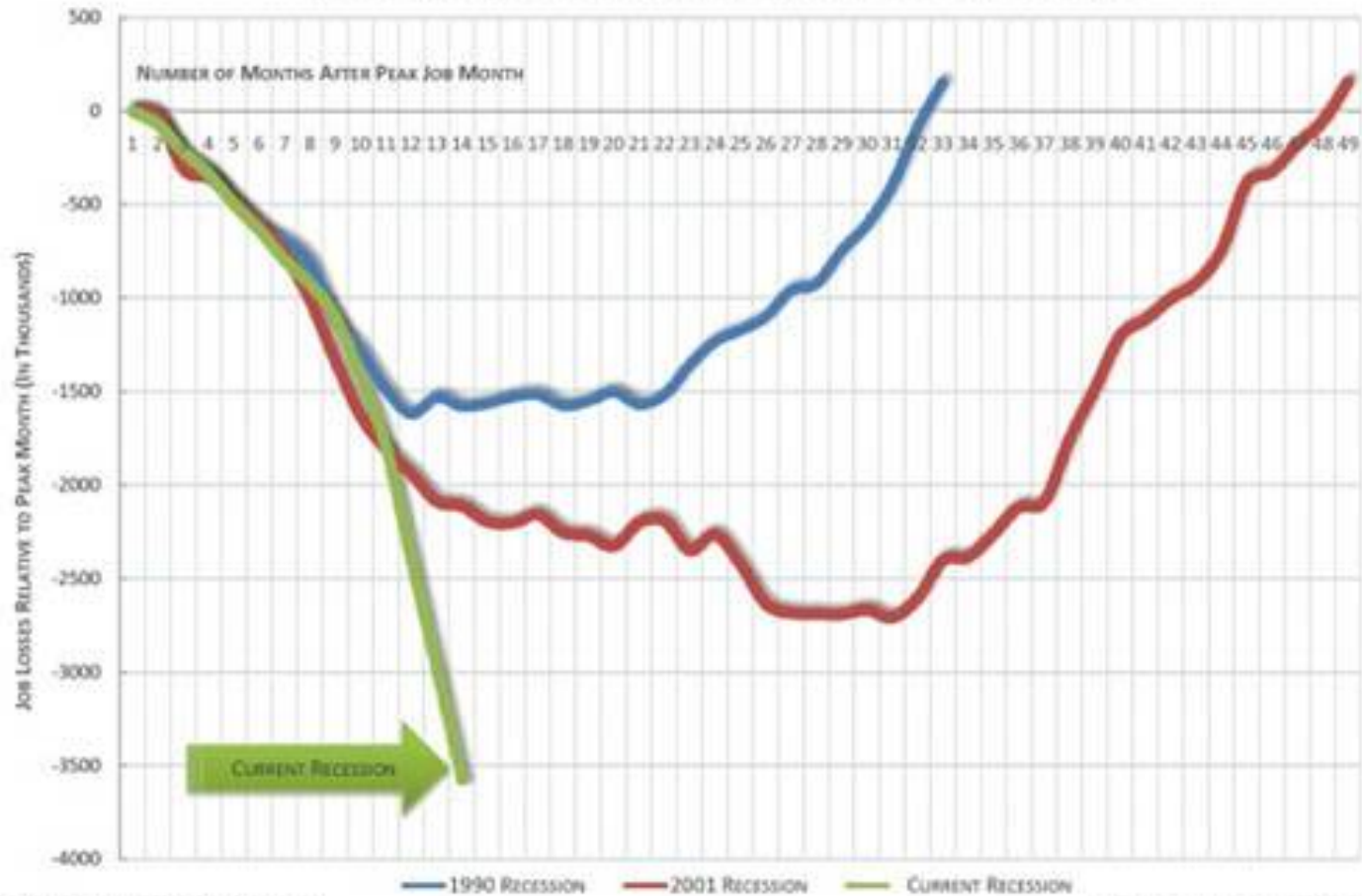
# Consequences Unfold

Sept. 29, 2008 – Largest Dow Point Drop on Record



# Consequences Unfold

## JOB LOSSES IN RECENT RECESSIONS



SOURCE: BUREAU OF LABOR STATISTICS

OFFICE OF THE SPEAKER, 2/6/09

# Consequences Unfold

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New York Bank Run 1933



IndyMac Bank Run 2008



# Serious Policy Concern

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- If derivative contracts are honored in the bailout of various failing financial institutions, the Lehman example shows that speculators will be handsomely rewarded for contributing to the fall of Lehman via their side bets and short selling -- with taxpayer money
- How does subsidizing speculators with taxpayer money benefit the real economy?