

FINANCIAL 9/11?

1. Comparing Crises

Crisis: Feature	9/11	Financial 9/11
Prelude	Threat not taken seriously Attack not averted	Threat not taken seriously Dissembling not averted
Impact	Twin Towers, pillars of America might, destroyed	Investment banks, pillars of American financial might, destroyed
Response	Massive counterattack Attacking the wrong enemy?	Massive (coordinated) financial support measures
Magnitude	Festering terrorism now War of civilization later?	Credit collapse averted or not Deep recession, depression?
Strategies	Expensive! Counterproductive? Isn't the real battle to win hearts and minds?	Expensive! Counterproductive? Isn't the goal to restore confidence, better institutions?

- Timing is slightly off: Lehman Bros. started to fail Friday Sept 9/12, and failed Monday Sept. 9/15. This was the first tower to fall.
- Pundits have called it: Wallstreet 9/11, America's Financial 9/11, Economic 9/11 (soon?)
- What is clear is: *The (financial) world will never be the same again.*

2. Tutorial: Econ 305 (*Money and Banking*)

What are financial institutions and markets suppose to do?

- Mobilize capital from savings
- Allocate capital to investment
- And manage risk

What are banks suppose to do?

- Intermediate between borrowers and lenders
- Provide liquidity services (e.g. chequing)
- Monitor/screen firms/projects for financial viability
- And manage risk

Banks manage more than half of the flow of all financial capital.

Sources of External Funds

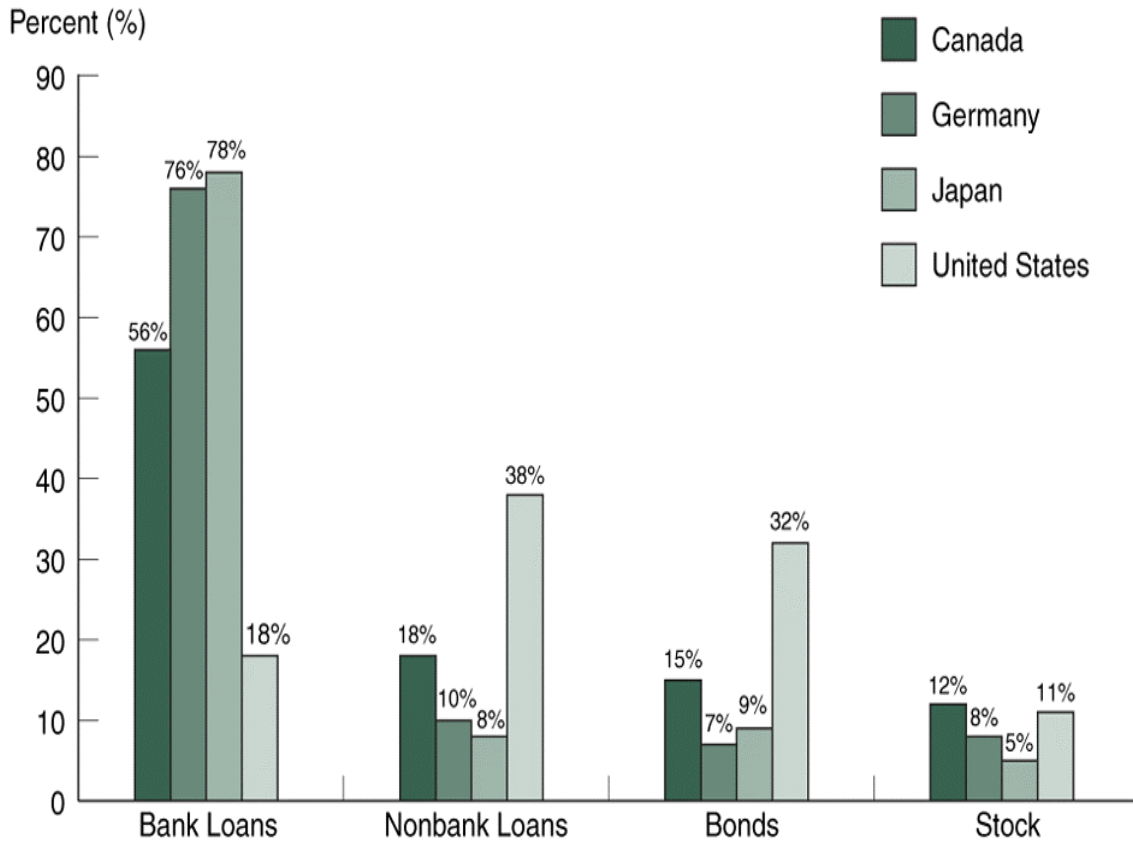


FIGURE 8-1 Sources of External Funds for Nonfinancial Businesses: A Comparison of Canada with Germany, Japan, and the United States

The data are for the 1970–2002 period for Canada and for the 1970–2000 period for Germany, Japan, and the United States.

Source: Apostolos Serletis and Karl Pinno, “Corporate Financing in Canada,” *Journal of Economic Asymmetries* 3 (2006); 1–20.

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Bank Balance Sheet:

Assets (use of funds)		Liabilities (source of funds)	
Good assets (loans)	\$95	Deposits	\$80
Questionable assets (sub-prime mortgages)	\$5	Debt to bondholders	\$17
		Shareholder equity	\$ 3
Total	\$100	Total	\$100

Surprise – the sub-prime mortgages are toxic! They would only fetch \$2. The balance sheet under the new *marking-to-market* “fair value accounting” should be:

Assets (use of funds)		Liabilities (source of funds)	
Good assets	\$95	Depositors	\$80
Toxic assets	\$2	Debt to Bondholders	\$17
		Shareholder equity	\$ 0
Total	\$97	Total	\$97

- With 0 equity, the bank is insolvent.
- The bank should be declared bankrupt to protect bondholders from losses.
- With bankruptcy, firms need to find new sources of credit.

- Moral Hazard? Temptation to conceal:
 - don't mark down assets, don't sell assets!
 - Pretend they aren't toxic.
 - Explains the puzzle: Why there is no market for toxic assets?

Government Interventions

- Standard Interventions:
 1. *Purchase and Assumption* forces a merger or takeover:
 - e.g. Bear Sterns, Wachovia, Washington Mutual.
 - Bondholders may lose.
 2. *Payoff Method* forces liquidation:
 - Bank is sold off in chunks to minimize disruption to intermediation.
 - Bondholders and uninsured depositors may lose.

- Lehman Bros. liquidation destroyed critical chains of intermediation and started the credit crisis.
3. *Forbearance*. Don't force the write down of (toxic) assets as required by marking-to-market:
- Instead, value assets at face value e.g. 1980 international debt crisis.
 - Marking-to-market rules were relaxed for illiquid assets in early Oct/08.
- Non-standard government interventions:
1. *Paulson Plan*. Buy the toxic assets at above market price.
 2. *Gordon-Brown Plan*. Inject equity and take an ownership stake.
 3. *M^cCain Platform*. Takeover or support individual household mortgagors
 4. *Chapter 14*. Insolvent banks operate under law that shields banks from creditors.

Off the Bank Balance Sheet

Don't banks have toxic paper "insurance"?

- Institutions with toxic mortgages appear to be over-insured, at least 10 times over (in the 50+ trillion "CDS" market)!
- Maybe some banks are in trouble because they were sellers of insurance!
- Maybe banks are in trouble because their toxic paper insurer went bankrupt!
- Who knows? It's off balance sheet!

3. Fragile Banks

Fragile Financial Structure

- Banks "lend long and borrow short".
- Loans are illiquid; deposits are liquid.
- "Mismatch of assets and liability" makes banks fragile.

Bank Runs

- Depositors lose (after bondholders) if total asset value falls sufficiently (below \$80 in above example).
- Fearing a loss, depositors run the bank.
- Large withdrawals force sales of illiquid assets at fire-sale prices and bankruptcy.
- Depositors that didn't withdraw lose.
- It is rational to run and withdraw if you believe all others are running.
- Beliefs and actions are self-fulfilling.

The lesson is: Panic before others Panic!!

- Bank runs can bankrupt even good banks.

Deposit insurance - works in averting runs by reassuring depositors they will not lose if they do not withdraw.

- Deposit insurance was increased in the US from 100,000 to 250,000!
- Unlimited deposit insurance was implemented in European countries!

Bank Failures

Issuers (sellers) of mortgage insurance:

- US investment banks bought and sold CDS insurance. The most levered banks fell first.
- Freddy, Fanny, AIG and other “insurers” of mortgages received huge gov’t funding and loan guarantees to avoid failing.

Holders of US toxic securitized mortgages (perhaps because their insurer went bankrupt):

- US regulated banks (e.g. Wachovia)
- European highly levered banks (e.g. Fortis);
- Europeans bought about half of the mortgages
- ... Huge capital infusions e.g. Citibank.

4. Crises

Financial Crises

- *Liquidity crisis*. When the quantity of money (including bank deposits) is insufficient to conduct transactions.
- *Debt crisis*. When a large proportion of debtors effectively default (usually caused by deflation or currency crisis.).
- *Credit crisis* (or crunch). When banks do not extend credit to firms, traders or other banks.
- *Banking crisis*. When large numbers of banks fail or are about to fail.

Non-systematic vs. systematic risk

- **Non-systematic risk**: a bank failure unrelated to other banks.

- Systematic risk is when many banks fail all together for the same reason(s)
 - A banking crisis may cause a credit crisis.
 - This can happen if one bank failure (Lehman Bros.) causes a chain reaction of other banks failing.
 - The failure of a big bank like Lehman Bros. induces systematic risk. Hence, it is said to be “too big to fail”. Yet they let it fail!

Economic Crises

- *Recession*. Usually, described as half a year of negative GDP growth.
- *Depression*. No formal definition.
- “A recession is when your neighbour is out of a job. A depression is when you are out of job.”

US Economic Actors For Economic Stability

Regulator: Security and Exchange Commission (SEC). Head is Christopher Cox.

Fiscal Authority: Treasury Dept.
Head is Hank Paulson.

Monetary Authority: Federal Reserve.
Chairman is Dr. Ben Bernanke.

- As a former academic Bernanke is well known for his banking and credit crisis theory of the Great Depression.
- As former Governor of the Fed., he is well known for this capitulation (2002):

“I would like to say to Milton (Friedman) and Anna (Swartz): Regarding the Great Depression. You’re right, we did it. We’re very sorry. But thanks to you, we won’t do it again.”

Is History Repeating Itself? So far ...

- Major banking crisis? – Yes. Failure of all the US investment banks and several large banks around the world.
- Credit crisis? – Yes, but worse. The inter-bank credit market has evaporated! Credit is also not being extended to firms.
- Debt crisis? – No yet.
- Liquidity crisis? – No, central banks have provided liquidity for domestic transactions.

International liquidity crisis? – Maybe.
Bankers acceptances are being rejected in as payments in the shipping market (see Section 7: Baltic Exchange Index).

Central banks – have the means and will to prevent liquidity and deflationary debt crises.

What is different about this banking and credit crisis that Bernanke missed?

- Bernanke, Paulson and Geithner (?) didn't think that letting Lehman fail would generate massive (credit chain) systematic risk.

Circle the culprit/suspect behind the Great Banking and Credit Crisis of 2008:

- a. Suckers (debt buyers, public pursue?)
- b. Securitization of mortgages
- c. Bad/corrupt debt ratings/agencies
- d. Byzantine derivatives
- e. Investment banks
- f. Hedge funds
- g. Supersized executive bonuses
- h. Compromised regulators
- i. Legislators with good intentions
- j. *Laissez faire* ideology
- k. Economic models/theories/doctrines
- l. All of the above

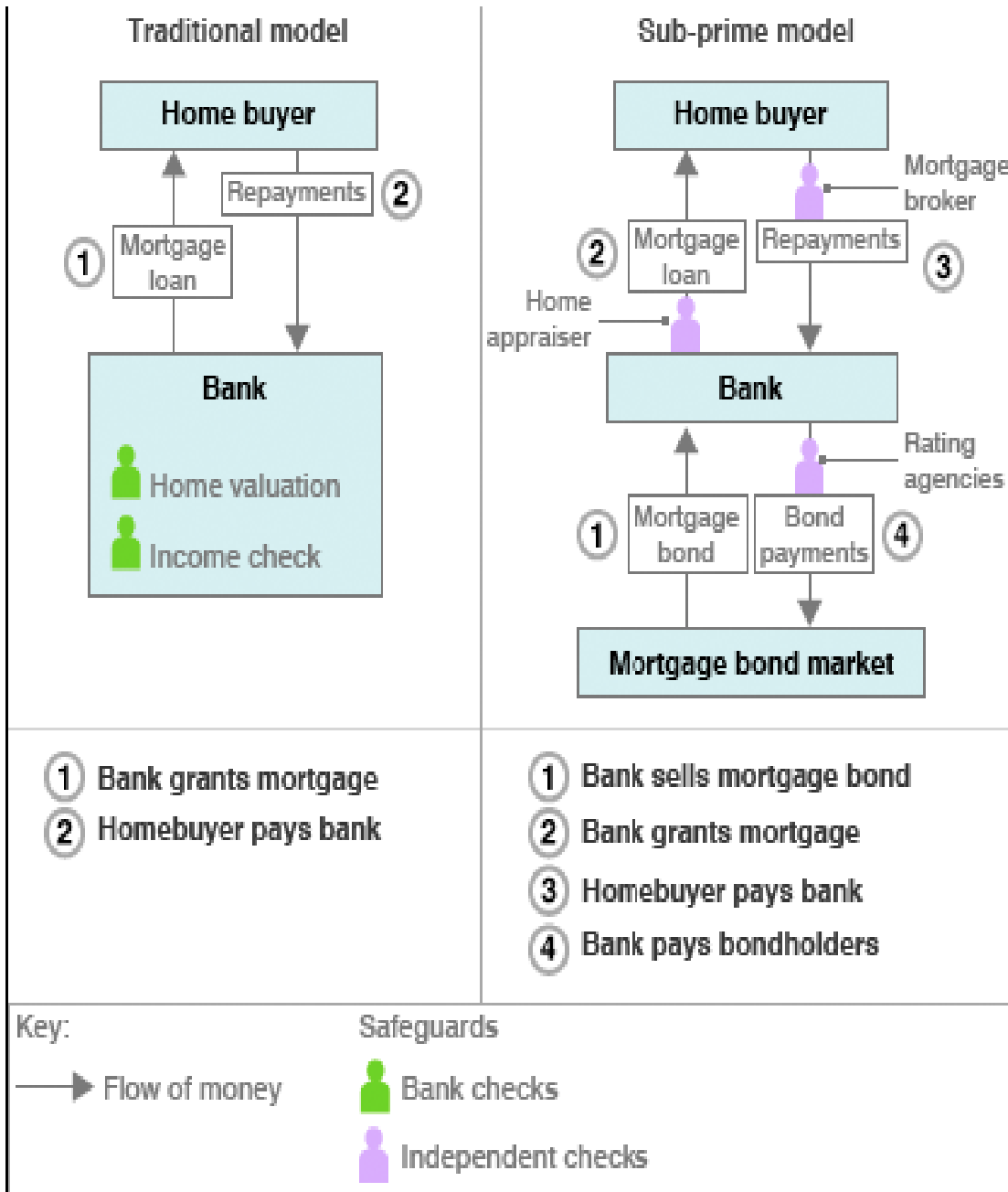
Answer: - *All of the above* are implicated, a perfect storm of excess and incompetence.

5. Two Culprits and Hypothesizes

Securitization of Mortgages and the *Originate-to-Distribute Hypothesis*

Mishkin, F., “On Leveraged Losses: Lessons from the Mortgage Meltdown,” Speech at the U.S. Policy Forum, New York, New York, February 29, 2008.

“The *originate-to-distribute* model, unfortunately, created some severe incentive problems, which are referred to as principal-agent problems, or more simply as agency problems, in which the agent (the originator of the loans) did not have the incentives to act fully in the interest of the principal (the ultimate holder of the loan). Originators had every incentive to maintain origination volume, because that would allow them to earn substantial fees, but they had weak incentives to maintain loan quality.”



Byzantine Derivatives and the “*Oblique Credit Chain*” Hypothesis

“Derivatives are financial weapons of mass destruction”

- Warren Buffet, 2003 annual letter to shareholders of Berkshire Hathaway

Average monthly event volume, all products Derivatives and Swaps

2001	2002	2003	2004	2005	2006	2007	2008
2,985	3,479	5,143	5,178	7,579	9,641	17,354	24,018

Chart 1.1: 2008

Operations Benchmarking Survey

International Swaps and Derivatives Association

Derivatives contracts have nominal value of over 500 trillion. New types of derivative, like Credit Derivative Swaps (CDS) have grown from nothing to 50+ trillion.

Gorton, G. “The Subprime Panic” NBER Working Paper 14398, October 2008. *Oblique-Derivative-Credit-Chain hypothesis*.

- Complex web in which sub-prime mortgages were interlaced with other debt and in which in turn was used for creating further “insurance” derivatives.
- Chains of bilateral transactions.
- Each link in the chain has counterparty risk.
- No publicly available prices for most CDSs. The ABX market is the exception.

6. *Puzzles*

Is it a *regulation problem* of too many CDOs and CDS)? Or,

Is it a *global imbalances problem* from too many and big bubbles?

(a) *Sub-prime Mortgages and Collateralized Debt Obligations (CDOs)*

- In the press, originate-to-distribute finance methods are the key culprit.
- Yet, before the crisis, many commentators viewed it as a serious problem that might induce a mild recession in the US.
- Of the \$13.6 trillion US mortgages market:
 - \$7.1 trillion is insured by Freddie and Fannie.
 - \$6.5 trillion is in the hands of the financial system.

- \$2.1 trillion remains as the upper bound on sub-prime mortgages
 - \$1.1-1.5 trillion in sub-prime mortgages maybe more realistic.
 - Source Brad Setter web site
- Losses depend on how low the housing market sinks. Before the crisis, as much as 40% of sub-prime may not have been performing (though not foreclosed). This was known and was escalating since 2006.

In a medium scenario, at least 80+ cents on the dollar would be recovered -- a total loss of no more than \$.4 trillion, a number smaller than Paulson's \$.7 trillion plan. In a very bad economy this might double, still around \$.7 trillion.

In the current crisis, sub-prime debt is not selling, or has very low prices of less than 30 cents on the dollar.

- “This isn’t 1/10 as bad as the Savings and Loan (S&L) Crisis in the 1980s”
 - a view before the current crisis

In the late 1980s, 2412 S&L associations failed in the US. The total losses are estimated at \$560.1 billion of which \$324.6 billion was paid by US taxpayer.

The S&L crisis is viewed to being a contributor but not the main cause of the mild US recession in 1990-91.

In 2008 dollars, the S&L losses are arguably larger than the anticipated losses in than the current crisis.

But “...not 1/10 as bad” seems a stretch – until you realize that unlike before, sub-prime mortgages were sold worldwide spreading the risk. Also, there was CDS insurance against large losses.

(b) *CDS Insurance*

- There is suspected to around \$50+ trillion CDS insurance against bad mortgages.
- Might the CDS insurance market multiply the actual cost of the losses?

Like all financial paper, the CDS market nets to zero as the holders assets equal and issuers liabilities.

CDS insurance minimized the financial and real fall out from the Enron and Worldcom bankruptcies.

- Is the current crisis one of issuers going under, coupled with those same issuers being key financial institutions?
- Is the current crisis, because the web of CDS claims has generated a domino effect where all financial institutions fall down?

- The oblique-derivative-credit-chain hypothesis includes CDS in the chain but does not give any priority to massive problematic insurance.

(c) *Bubbles, Bubbles, Bubbles...*

- In the last 5 years, many real estate, stock and commodity markets worldwide have experienced huge price % appreciations.
- Such appreciations could only be justified on the basis of ongoing strong real growth.
- There is a real productivity boom occurring worldwide, so well-grounded optimism may have feed wrong-headed finance.

7. Two Key Gauges of the Immediate Threat

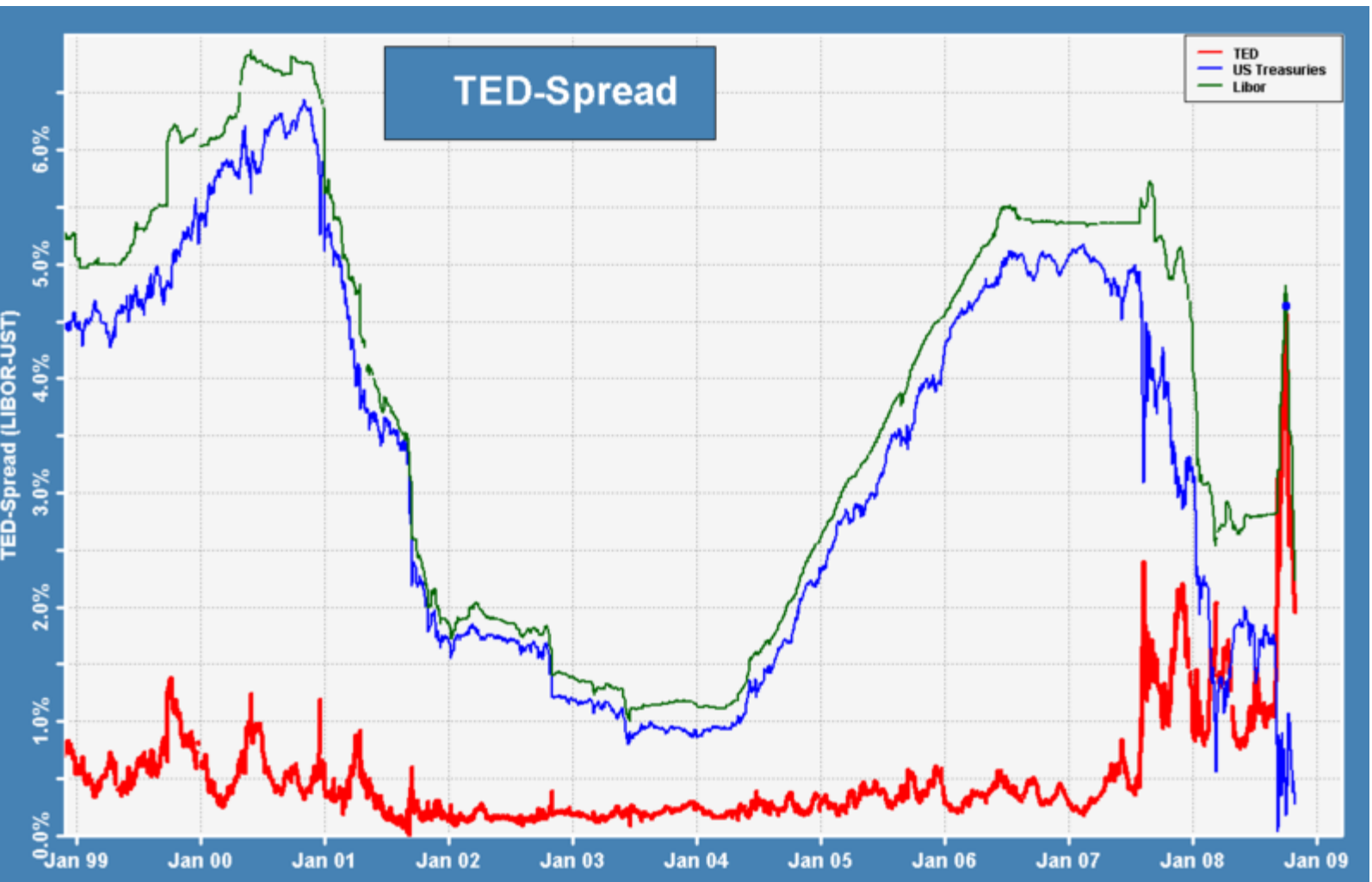
(a) *TED Spread (LIBOR less T-Bill)*

- LIBOR (London Inter-Bank Offer Rate)

“The World’s Most Important Number?”

<http://news.bbc.co.uk/2/hi/business/7680552.stm>

- The (3-month) TED spread is the difference: US dollar LIBOR rate less US Treasury-Bill rate.
- The 3-month US dollar TED spread is viewed as the key barometer of the state of the banking system.
- The recent spread range of 2-4% is likened by Martin Barnes to the financial system having a heart attack.



- Nov 24/08 TED is 2.16%.
- The financial crisis continues unabated.
- In only two months, it has already induced a worldwide economic contraction, the most rapid we have every experienced.

(b) *Baltic Exchange Dry Index (BDI)*

- The BDI is an index of spot shipping prices.
- It is the key barometer for assessing the state of the international shipping/economy.

Nov 24/08. Exponential average in red.
200 day average in green



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